DRAFT ENVIRONMENTAL ASSESSMENT AND PROPOSED FINDING OF NO SIGNIFICANT IMPACT

2019 PLANNED DEVIATION TO THE WATER CONTROL PLAN FOR LAKE OKEECHOBEE AND EVERGLADES AGRICULTURAL AREA (LORS 2008)

GLADES, HENDRY, MARTIN, OKEECHOBEE AND PALM BEACH COUNTIES

US Army Corps
of Engineers ®
Jacksonville District

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1 PROJECT PURPOSE AND NEED

The following details the purpose and need of the proposed action.

1.1 Project Authority

The Central and Southern Florida (C&SF) Project, as described in House Document 643, 80th Congress, Second Session, was initially authorized by the Flood Control Act of 1948, Public Law 80-858. The remaining works of the C&SF Project, including all works in the Water Conservation Areas (WCAs), were authorized by the Flood Control Act of 1954, Public Law 83-780. The Flood Control Act of 1954 recognized that the plan of improvement may require refinement and that modifications within the scope and purpose of the authorization could be made at the discretion of the Chief of Engineers. Section 309(l) of the Water Resources Development Act of 1992, Public Law 102-580 reads in part: " ... (1) CENTRAL AND SOUTHERN FLORIDA (C&SF) -The Chief of Engineers shall review the report of the Chief of Engineers on central and southern Florida, published as House Document 643, 80th Congress, 2nd Session, and other pertinent reports, with a view to determining whether modifications to the existing project are advisable at the present time due to significantly changed physical, biological, demographic, or economic conditions, with particular reference to modifying the project or its operations for improving the quality of the environment, improving protection of the aquifer, and improving the integrity, capability, and conservation of urban water supplies affected by the project or its operation." This provided authority to for the Lake Okeechobee Regulation Schedule study.

The 2008 Lake Okeechobee Regulation Schedule and Supplemental Environmental Impact Statement (SEIS) were developed to address a need to manage Lake Okeechobee at a lower lake schedule for two main reasons: 1) to address deterioration of Lake Okeechobee's littoral zone and the Caloosahatchee and St. Lucie estuaries caused by high lake stages and inflexible release guidance, and 2) to address integrity issues with the Herbert Hoover Dike (HHD) levee system that surrounds Lake Okeechobee and protects surrounding communities from flood damage.

1.2 Project Location

Lake Okeechobee is located in south central Florida, and occupies portions of Glades, Hendry, Martin, Okeechobee, and Palm Beach counties (**Figure 1-1**). Lake Okeechobee has an area of approximately 730 square miles with its approximate center near 26° 56' 55" north latitude and 80° 56' 34" west longitude. The area that may be affected by the lake regulation schedule includes much of south Florida and includes Lake Okeechobee ecology, particularly within the littoral and marsh areas of the lake, and major downstream estuaries including the St. Lucie and Caloosahatchee estuaries. To a lesser degree, other areas considered to be affected are within the Everglades Agricultural Area (EAA), in the northern Water Conservation Areas (WCAs), including WCA 3A north of I-75, WCA 2A, and the Arthur R. Marshall Loxahatchee National Wildlife Refuge (WCA 1), and the Lake Worth Lagoon.

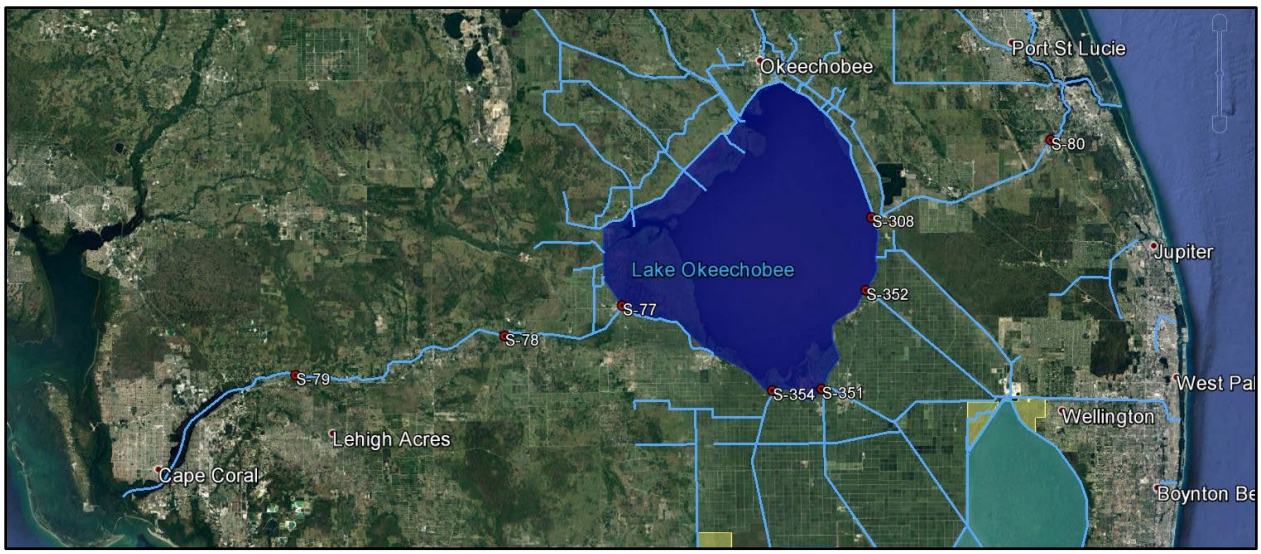

Figure 1-1. Map of Lake Okeechobee Regulation Schedule and Primary Affected Areas

1.3 Project Need or Opportunity

Operations within the project area are currently governed by the water control plan for Lake Okeechobee and the Everglades Agricultural Area (also known as the Lake Okeechobee Regulation Schedule (LORS 2008)). The agency goal established for LORS is to balance project purposes while taking measures within the Corps' authority to further public health and safety, specifically with regard to dike stability, and further environmental goals. The Corps' intent with this deviation is to improve the ecological health of Lake Okeechobee and the St. Lucie and Caloosahatchee estuaries with minimal or no impact to the competing project purposes. In addition to meeting Congressionally authorized project purposes including flood control, water supply, navigation, fish and wildlife enhancement, and recreation, LORS objectives include: a) ensuring public health and safety; b) managing Lake Okeechobee at optimal lake levels to allow recovery of the lake's environment and natural resources; and c) reducing high volume regulatory releases to the estuaries.

The decision-making process for Lake Okeechobee water management operations considers all Congressionally-authorized project purposes. The decision-making process to determine quantity, timing, and duration of the potential release from Lake Okeechobee includes consideration of, but is not necessarily limited to: C&SF Project conditions, historical lake levels, estuary conditions/needs, lake ecology conditions/needs, WCA water levels, Stormwater Treatment Area (STA) available capacity, current climate conditions, climate forecasts, hydrologic outlooks, projected lake level rise/recession, and water supply conditions/needs.

The water management operational criteria described in the 2008 water control plan establishes the allowable quantity, timing, and duration of releases from Lake Okeechobee to the WCAs and to tide (estuaries). Water management decisions utilize the 2008 LORS Parts A through D for guidance on releases from Lake Okeechobee. Information shown on Part A and Part B is utilized to compare the Lake elevation and the corresponding band and sub-band, respectively see **Figure 1-2** and **Figure 1-3**. Information shown on Part C and Part D is utilized to establish the recommended releases to the WCAs and the recommended releases to tide (estuaries), respectively see **Figure 1-4** and **Figure 1-5**. The high lake management band includes lake levels above 16 feet, National Geodectic Vertical Datum of 1929 (NGVD) in advance of the

wet season, or levels above 17.25 feet, NGVD during the dry season. In this band, operations are focused on reducing the lake level and freeing up additional capacity for runoff from future heavy rain events. Maximum water releases typically take place in this band. The operational band consists of five sub-bands that help guide water managers to appropriate decisions that balance the needs of all users, while maintaining a lake level in the preferred range of 12.5 and 15.5 feet, NGVD. The operational band varies seasonally between elevations 10.5 at its lowest point and 17.25 at its highest point. The goal of the operational band is to manage the lake stage to balance all congressionally authorized project purposes. This involves use of flood control releases, environmental releases, base flow releases, and water supply releases.

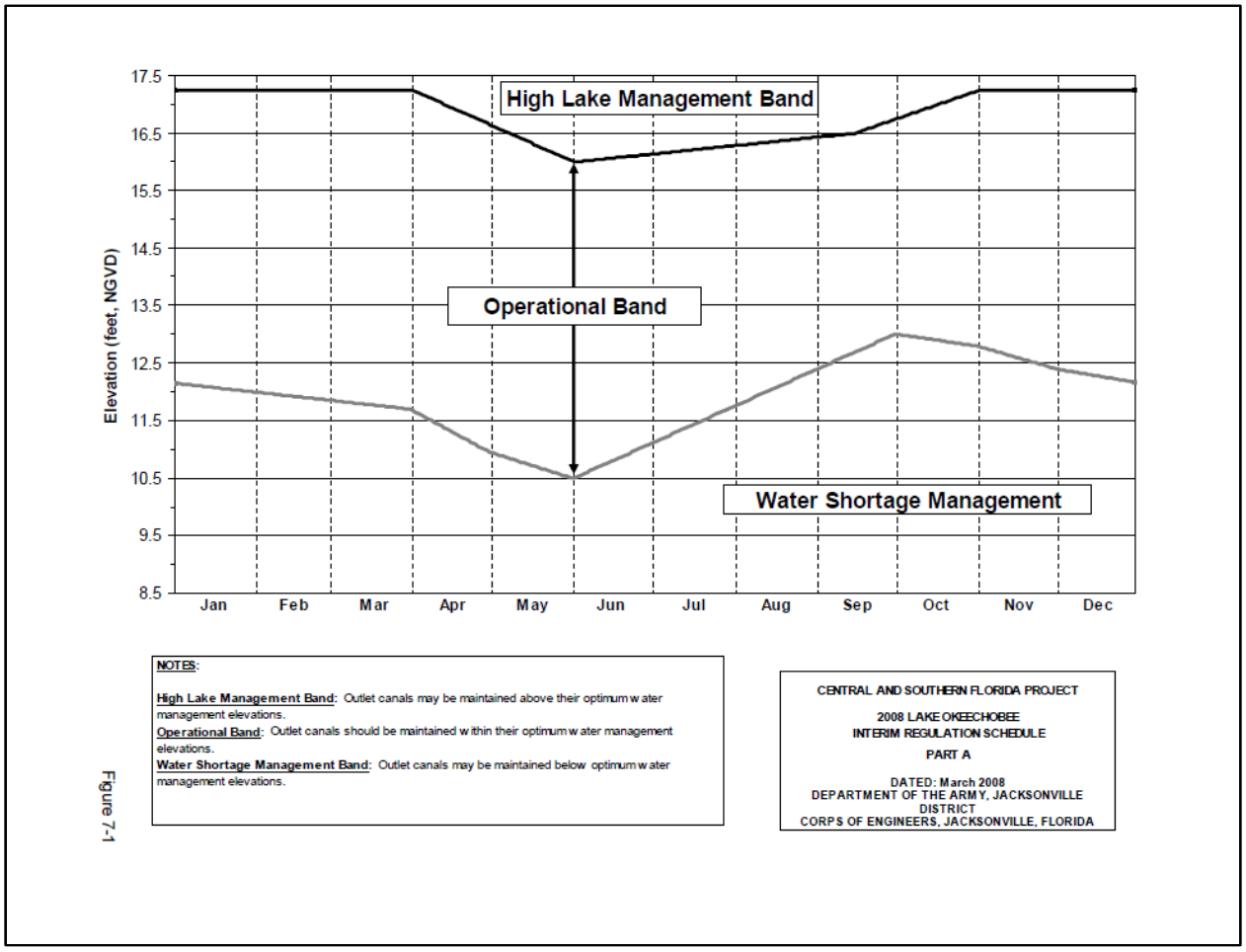

Figure 1-2. LORS 2008 Part A Defines Bands

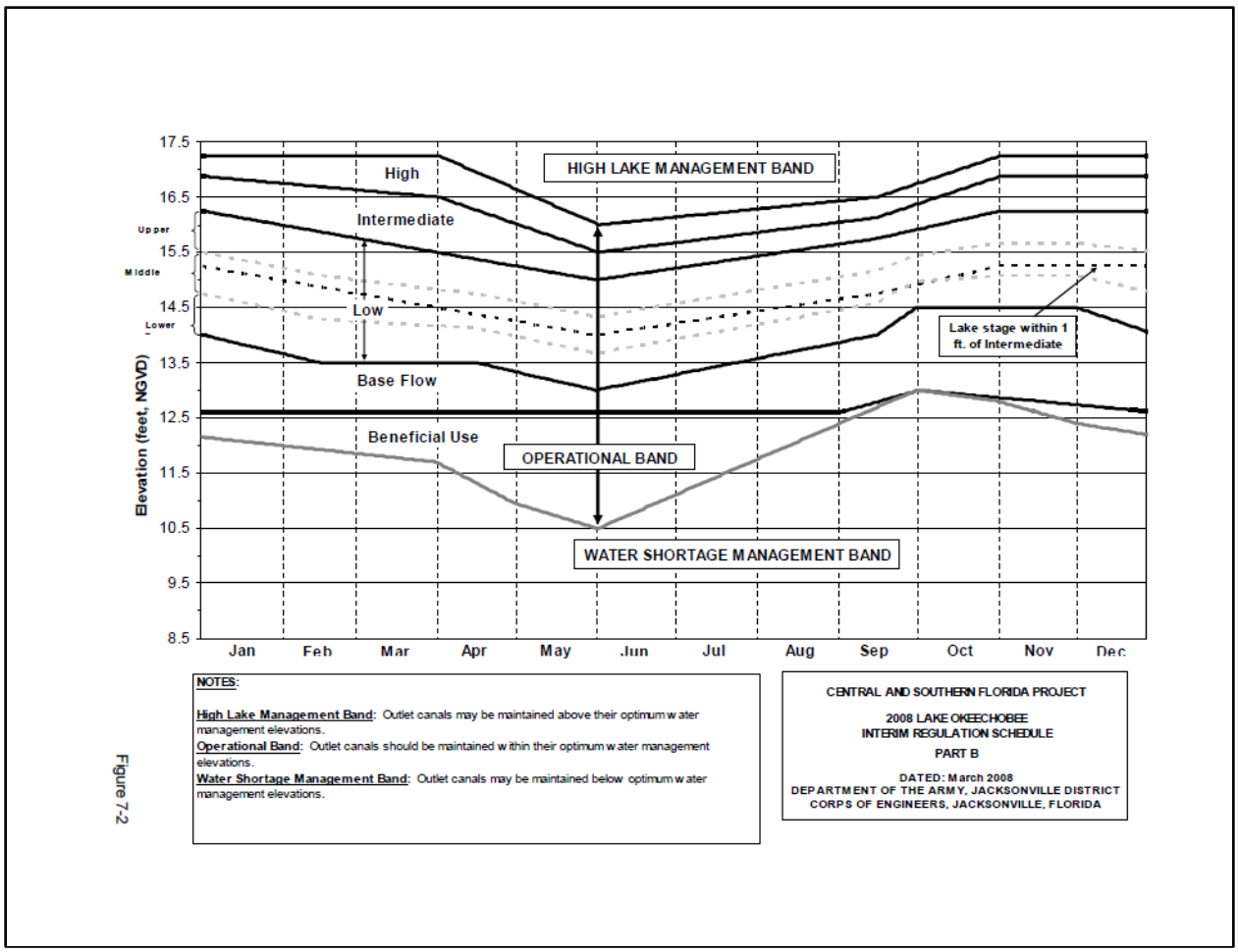

Figure 1-3. LORS 2008 Part B Defines Operational sub-bands

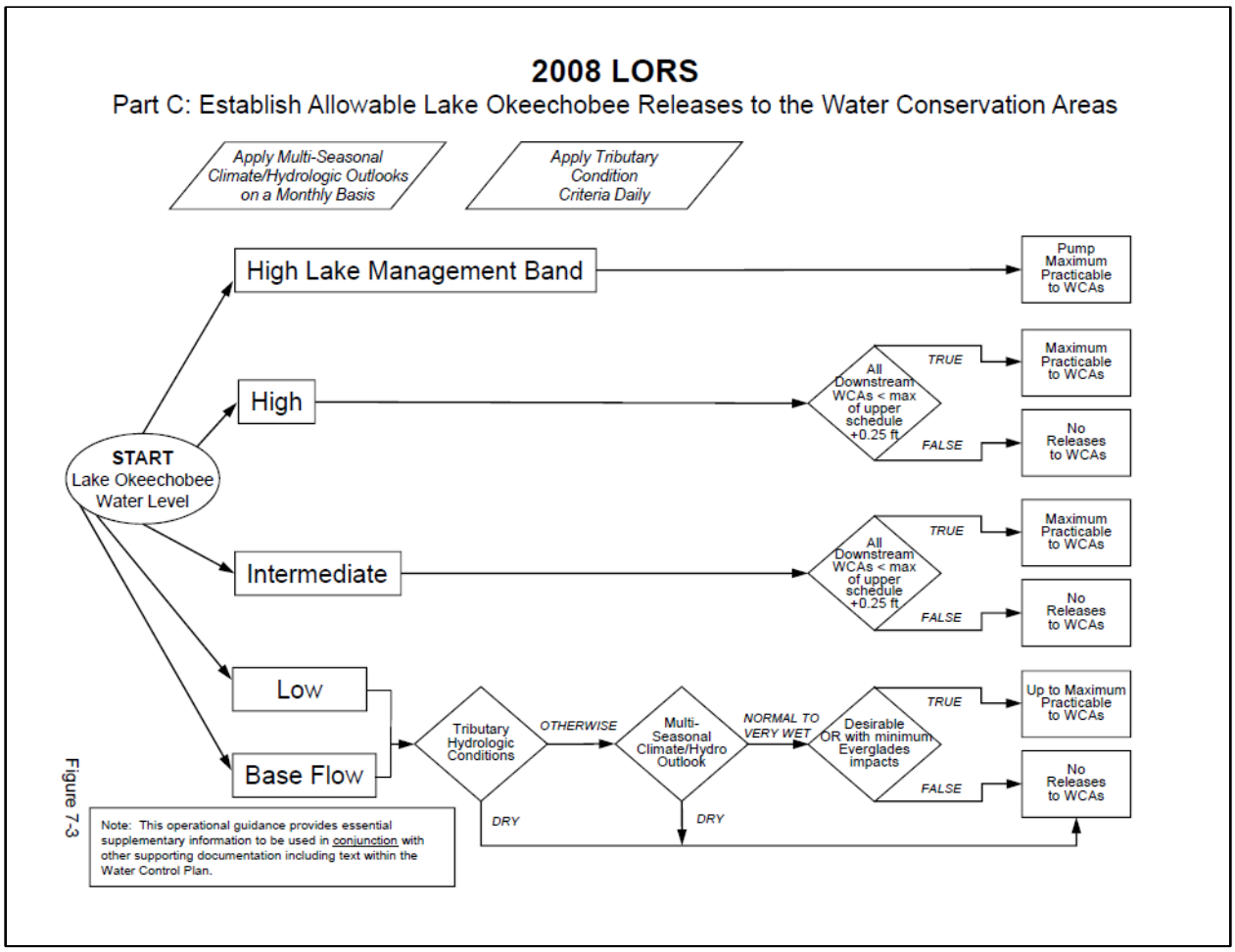

Figure 1-4. LORS 2008 Part C Release Guidance to WCAs

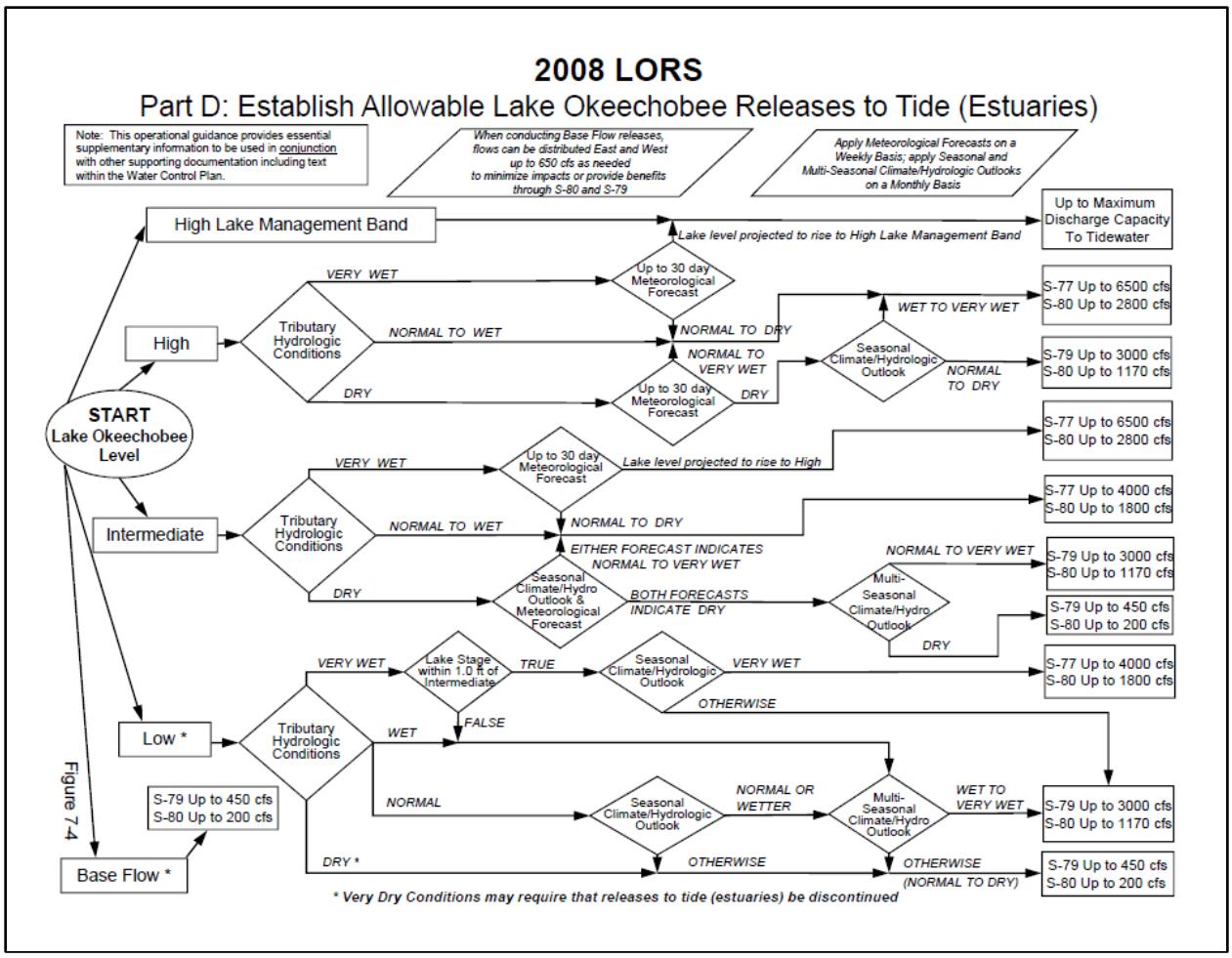

Figure 1-5. LORS 2008 Part D Release Guidance to Tide (Estuaries)

The U.S. Army Corps of Engineers, Jacksonville District (Corps) is initiating a planned deviation from LORS 2008 in anticipation of and following freshwater harmful algae blooms (HABs) with the goal of reducing the risk to public health and safety associated with HABs. Generally, the proliferation of algae provides the energy source to fuel food webs, so most algae are not harmful even when they form "blooms" that are sometimes seen in coastal, estuarine, and inland waters. However, a small percentage of algae produce toxins, and are termed HABs. HABs occur when algae, which can either be protists, bacteria or simple plants that live in water, under some circumstances produce toxins that can have harmful effects on people, fish, shellfish, marine mammals and birds.

The primary concern with Lake Okeechobee has been the cyanobacteria (also called commonly blue green algae). Little is known about exactly what environmental conditions trigger toxin production. Over time, these toxins are diluted and eventually break down and disappear. Breakdown of microcystin, the toxin produced by the cyanobacteria *Microcystis aeruginosa*, is fairly rapid in the environment with significant breakdown within 14 days. HABs also include blooms of non-toxic species that have harmful effects on marine ecosystems. For example, when masses of algae die and decompose, oxygen can be depleted in the water, causing the water to become low in oxygen. Low oxygen can have adverse effects on marine organisms by forcing them to leave the area, or causing mortality. The primary problem with freshwater

HAB events is the low oxygen conditions which cause fish kills. There have been no marine mammal mortalities linked to the freshwater toxins normally found in Florida.

Cyanobacteria (*Cyanophyceae* or blue-green algae) and dinoflagellates (*Dinophyceae*) have traditionally been associated with HABs. Although cyanobacteria are found naturally, increases in nutrients can exacerbate the extent, duration and intensity of blooms. Other factors that contribute to blooms include warm temperatures, reduced water flow, and lack of animals that eat algae. Red tides are HABs that occur when microscopic algae in seawater proliferate to higher-than-normal concentrations. The dinoflagellate, *Karenia brevis*, is the most common red tide organism that is responsible for the red tide outbreaks along the southwest coast of Florida. The marine mammal mortalities in Florida have been linked to the toxins produced by the salt water species, *Karenia brevis*. Red tide occurrences are most common off the central and southwestern coast of Florida between Clearwater and Sanibel Island, but may occur anywhere in the Gulf.

Lake Okeechobee and the Northern Estuaries, including the St. Lucie and Caloosahatchee Estuaries, have also experienced HABs of cyanobacteria. Although they can occur at any time, HABs are most common in Florida during the summer and early fall. In general, there are a number of physical, chemical, and biotic factors that influence formation of HABs, however no single factor has been identified as a root cause for fresh water HAB events. Red tide HAB events have been determined to be strongly linked to ocean current patterns (Weisberg et al., 2019; Tester et al., 1997). Algal bloom proliferation is triggered by multiple factors, including but not limited to, light, temperature, nutrients, and hydrology.

Retaining water in Lake Okeechobee or releasing water from Lake Okeechobee has no known short term impact to HAB conditions in Lake Okeechobee. The Corps does not have influence over the main factors (sunlight, nutrient loads, wind conditions, temperature and still/stagnant/stratified water conditions) controlling bloom conditions within Lake Okeechobee. The releases the Corps is able to make from the Corps structures are small relative to the volume/extent of Lake Okeechobee and cannot disrupt stratification conditions in Lake Okeechobee.

Nutrient loading to the estuaries on the east coast and west coast from Lake Okeechobee is overshadowed by local runoff in most all conditions, but increased nutrient loading can be a factor in favoring freshwater bloom conditions in the estuaries. However high steady discharges from Lake Okeechobee (similar to 2016 conditions) can increase the fresh water zone in the estuaries where the Lake Okeechobee freshwater blue greens can survive, and that type of discharge can increase stratification (enhances bloom conditions for Lake Okeechobee blue greens), reduces tidal flushing (disrupts freshwater HAB by circulation and increased salinity levels) and tends to create stagnant water conditions (favors blooms) in some area.

For the purposes of this planned deviation from LORS 2008, water management actions are focused on increasing flexibility within the LORS 2008 Part A operational band to avoid and minimize risk related to freshwater blue green algae blooms. Lake Okeechobee freshwater releases can lower salinities in the estuary and provide nutrients that promote blue green algae blooms and can transmit blue green algae from Lake Okeechobee to the estuaries. There is a less direct link between the effects of Lake Okeechobee freshwater management releases and red tide, which is a saltwater HAB that often originates offshore in the ocean. The Florida Department of Health (DOH) takes the lead in determining if a harmful algal bloom presents a risk to human health. DOH issues health advisories for recreational waters where there is a risk of the public coming into contact with an existing algal bloom as it deems appropriate. The Florida Department of Environmental Protection (FDEP) coordinates with the water management districts, such

as the South Florida Water Management District (SFWMD), and the Florida Fish and Wildlife Conservation Commission (FWC) to routinely sample observed and reported algal blooms and test for algal identification and toxicity. HABs have occurred in the past with blooms in the 1980s leading to surface water improvement and management program (SFWMD 1989) and basin management action plans led by FDEP to reduce nutrients into Lake Okeechobee and the estuaries. However, frequency and intensity of HABs may be increasing and have recently occurred on Lake Okeechobee and in the downstream estuaries twice (2016 and 2018). The 2018 HAB covered over 80% of the Lake Okeechobee surface area. The algae crisis has caused substantial and widespread economic impacts to Florida communities over the last several years resulting in state declared emergencies in multiple counties[1]. On July 9, 2018, Governor Rick Scott issued an Emergency Order (Executive Order 18-191) in Glades, Hendry, Lee, Martin, Okeechobee, Palm Beach and St. Lucie counties to help combat HABs. This emergency declaration allowed the FDEP and SFWMD to waive various regulations to store water in additional areas south of Lake Okeechobee, to help alleviate water discharges to the Northern Estuaries. The State of Florida has deployed two emergency task forces (Blue Green Algae Task Force and Florida Harmful Algal Bloom Task Force) to address algal blooms and has invested significant resources to develop and implement solutions to the algae crisis. The HABs that have occurred on Lake Okeechobee and in the downstream estuaries have not only impacted the surrounding communities that are dependent on tourism, but have also posed risk to the health and human safety. HABs have led to the issuance of health advisories by the FDOH, closure of recreational areas, and significant economic losses in adjacent communities.

FDEP provides updates on current algal blooms and how the state is responding to protect human health, water quality and the environment by placing sampling results, monitoring and testing information and latest actions by FDEP, the water management districts and other local, state and federal response team partners on their website for algal blooms. For the week of June 28 to July 4, 2019, FDEP has currently reported that satellite imagery from the National Oceanic and Atmospheric Administration (NOAA) for Lake Okeechobee indicates medium to high blue-green algal bloom potential. The coverage and intensity of the bloom has been variable, likely due to local meteorological conditions rather than significant changes in the bloom itself. The highest intensity signal has typically been in the central portion of the lake. Blue-green algae continues to be reported by Corps lock operators upstream and downstream of the S-79/Franklin lock (west of Lake Okeechobee). Reference https://floridadep.gov/AlgalBloomWeeklyUpdate. **Figure 1-6** illustrates the potential for blue green algae blooms on Lake Okeechobee from early January through July 7, 2019. A color map is shown to illustrate the estimated bloom potential. Satellite imagery suggests cyanobacteria bloom potential continues to increase with visible blooms in the center of the lake. **Figure 1-7** illustrates the how rapidly HABs can develop. In June of 2018, a HAB developed on Lake Okeechobee in the span of just over three days. FDEP HAB sampling has indicated that the current HAB on Lake Okeechobee contains *Microsystis*, a known HAB genus.

[1] https://www.floridadisaster.org/news-media/news/20180709-gov.-scott-issues-emergency-order-to-combat-algal-blooms-in-south-florida/

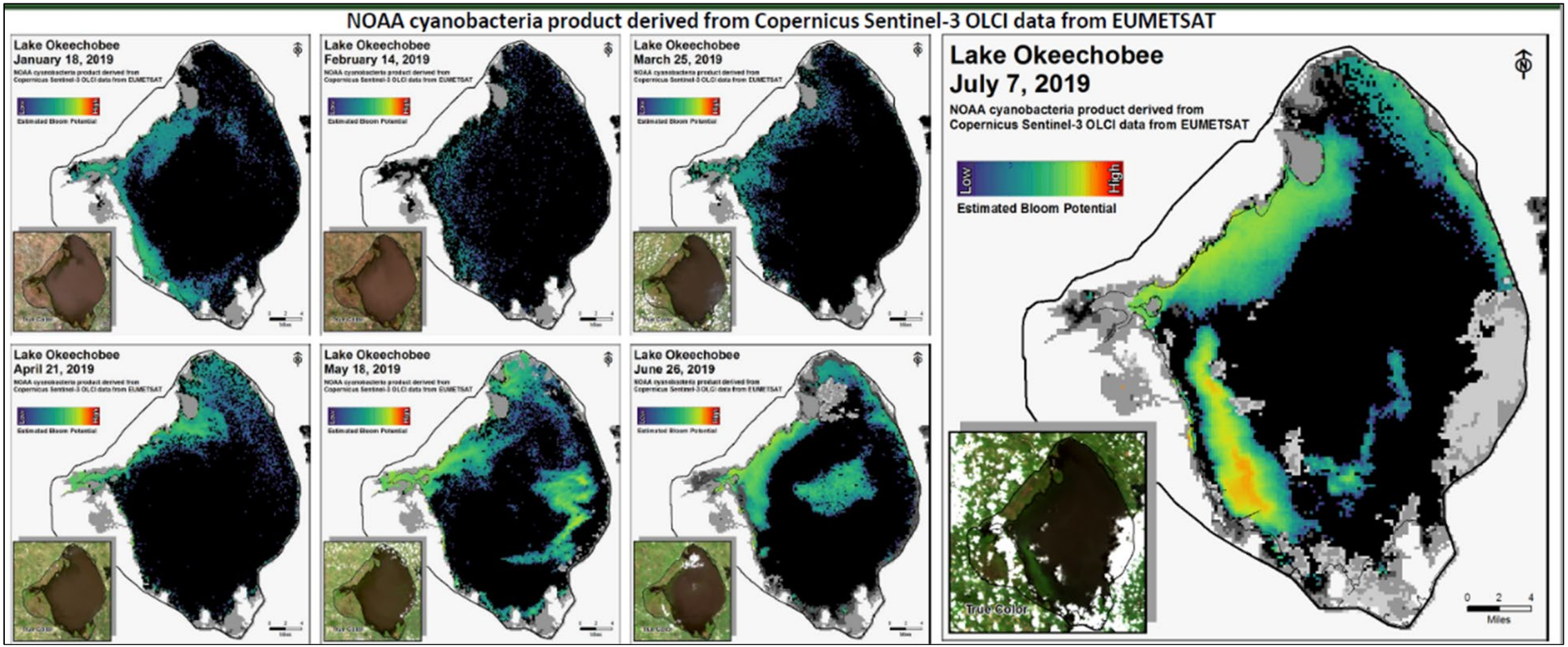

Figure 1-6. Lake Okeechobee Cyanobacteria Bloom Potential

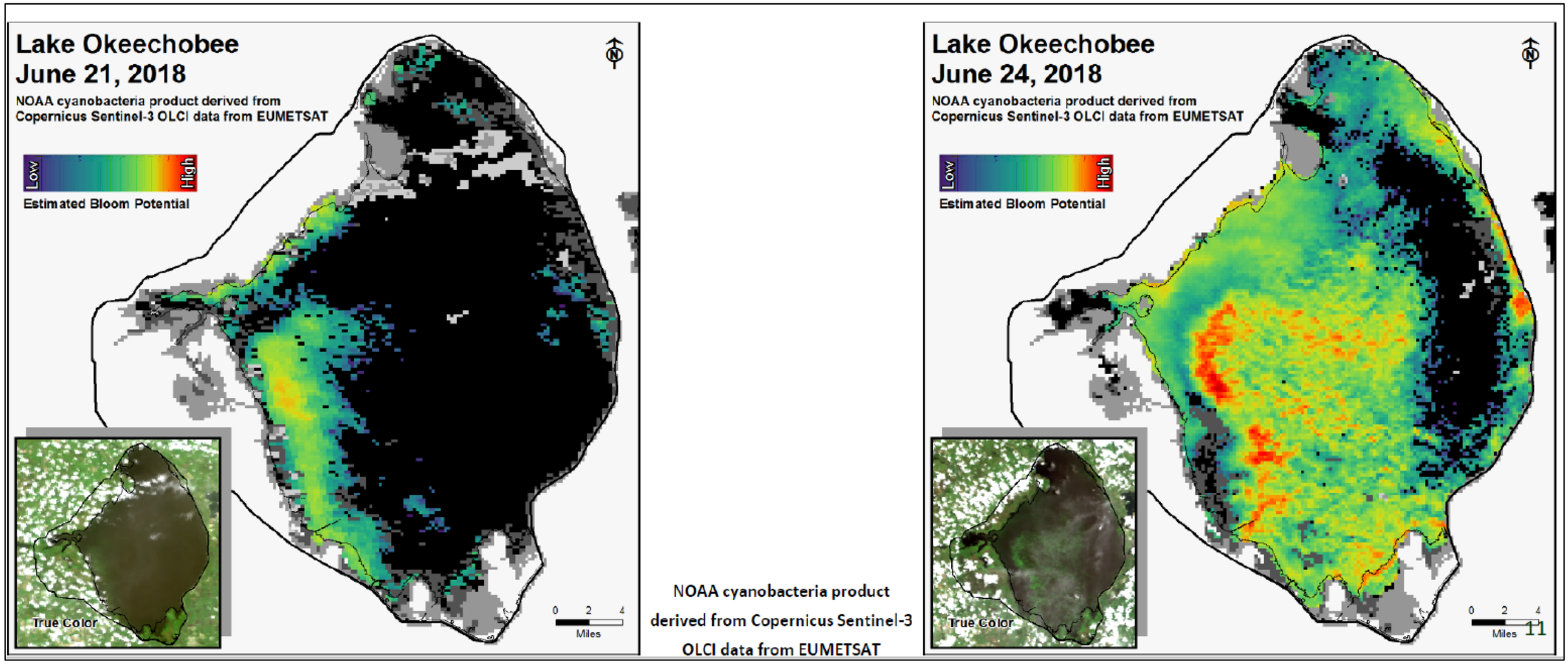

Figure 1-7. 2018 Lake Okeechobee Cyanobacteria Bloom

Under the current LORS 2008, a provision for make up releases exists to account for releases held back in the operational band that can then be made up later. Due to unprecedented construction on Herbert Hoover Dike (HHD) to repair the vulnerable high hazard dam, the holding back of releases when LORS 2008 indicates they should be made, is a decision which the Corps Dam Safety Officer (DSO) will closely evaluate based on the unique conditions at the time. Releases made in advance will give the DSO much more flexibility to consider holding back.

The proposed action will enhance the ability of the Corps to respond to HABs within its authority with the goal of reducing the potential risk to human health and safety by allowing preemptive releases to create storage within the Operational Band of Part A (**Figure 1-2**) to allow for holding back releases from Lake Okeechobee should HAB occur and pose the risk of release of additional nutrients to downstream estuaries. In other words, the planned deviation will allow the Corps to alter the timing and volume of Lake Okeechobee releases to the WCAs, east, and/or west to allow for greater flexibility with water management decisions when HABs are present or forecasted in Lake Okeechobee, the St. Lucie or Caloosahatchee estuaries or the system of canals that connect them.

The planned deviation will allow the flexibility to make slightly larger releases east and west than LORS 2008 Part D (establishes allowable Lake Okeechobee releases to tide (estuaries)) calls for and make releases south when LORS Part C (establishes allowable Lake Okeechobee releases to the WCAs) does not recommend releases within the Beneficial Use sub-band, Base Flow sub-band, Low sub-band, and the Intermediate sub-band. These slightly larger releases when risk of transporting HABs is low will allow greater flexibility to reduce releases during times when HABs are present in the lake or estuaries. The cumulative volume of water released under the planned deviation will be tracked against the volume held back that would have been released under LORS 2008. The objective will be to reach a net zero balance such that the total volume released across the entire year (between 1 February and 31 January) is unchanged from the releases that would have taken place under the existing schedule.

The planned deviation would be implemented as soon as possible, but action may not be taken immediately and would depend upon the conditions set forth in the operational strategy. This deviation will be in effect for a minimum duration of one year. The Corps Water Management Section's assessment of hydrometerological conditions and stakeholder or agency input may suspend or discontinue the planned deviation due to impacts greater than expected/discussed within this EA. This deviation may be terminated at any time. Reevaluation of and possible extension of the planned deviation will occur after year one of implementation via memorandum to the South Atlantic Division Commander. Water bank summary information as well as any unexpected effects or challenges encountered during implementation will be evaluated in the memorandum. The planned deviation may be extended until LORS 2008 is replaced by a new water control plan (LOSOM) anticipated in 2022. The proposed action is expected to reduce ecologic and economic losses that could result from HABs. Implementation of the proposed action would be consistent with conditions outlined in the operational strategy (**Appendix A**).

1.4 Related Environmental Documents

The Corps has documented a number of environmental documents relevant to the proposed action. Information contained within the previous NEPA documents listed below is incorporated by reference into this EA and Proposed FONSI.

- Lake Okeechobee Regulation Schedule Study Final Supplemental Environmental Impact Statement and Record of Decision, U.S. Army Corps of Engineers, Jacksonville District, 2008

- Lake Okeechobee Regulation Schedule Additional Operational Flexibility Justification and National Environmental Policy Act Coverage Determination, U.S. Army Corps of Engineers, Jacksonville District, October 26, 2018
- Lake Okeechobee Regulation Schedule Additional Operational Flexibility Justification and National Environmental Policy Act Coverage Determination, U.S. Army Corps of Engineers, Jacksonville District, February 22, 2019

1.5 Decisions to be Made

This EA will evaluate whether to initiate a planned deviation to the water control plan for Lake Okeechobee and Everglades Agricultural Area (LORS 2008). This EA will document and evaluate alternatives to accomplish that goal. The No Action Alternative and other reasonable alternatives will be studied in detail to determine the Preferred Alternative.

1.6 Scoping and Issues

Reference **Appendix B** for pertinent correspondence related to the proposed action.

1.7 Permits, Licenses and Entitlements

The Corps has determined the proposed action is consistent to the maximum extent practicable with the enforceable policies of Florida's approved Coastal Zone Management Program. This proposed activity (releases up to 2000 cubic feet per second (cfs) to the west coast and up to 730 cfs to the east coast) is described within the additional operational flexibility which was part of the 2008 LORS SEIS (USACE 2008). The Florida State Clearing House has previously concurred that the LORS SEIS, which included additional operational flexibility that is similar to this proposed deviation, was consistent with Florida's Coastal Zone Management Program. The Corps contacted FDEP on July 10, 2019 for the purpose of notification of the proposed action. FDEP responded on July 18, 2019. FDEP noted that the proposed deviation is not exempt from the Coastal Zone Management Act (CZMA) process and comments provided in the correspondence were not intended to represent FDEP's CZMA review. The Corps will continue to coordinate with the State of Florida and if applicable, will comply with conditions imposed to the maximum extent practicable. The Corps does not anticipate the ongoing coordination to materially affect the decision on the proposed action.

2 PROPOSED ACTION AND ALTERNATIVES

Each of the following alternatives described below were considered and evaluated against the project purposes and deviation goals, and associated environmental impacts were considered.

Alternative A (No Action Alternative): The No Action Alternative would continue current water management operations as defined in LORS 2008. Reference **Section 1.3** for a brief description of the No Action Alternative.

Alternative B (HAB Operational Strategy): LORS 2008 applies with the following modifications. Alternative B will allow the flexibility to make slightly larger releases east and west than LORS 2008 Part D calls for and make releases south when LORS Part C does not recommend releases within the Beneficial Use sub-band, Base Flow sub-band, Low sub-band, and the Intermediate sub-band. Reference **Appendix A** for a complete description of Alternative B.

Changes to LORS 2008 to include operations for HABs can be summarized as follows:

- Releases could be made in advance of HAB events, and would be limited to 2,000 cfs measured at S-79 and up to 730 cfs measured at S-80, and would only be applicable when LORS Part D recommends up to 450 cfs measured at S-79 and up to 200 cfs as measured at S-80 or when Part D does not specifically recommend releases (Beneficial Use Sub-band). LORS Part D guidance (**Figure 1-5**). Releases within the Beneficial Use sub-band would be cut back if lake levels fell within 0.25 feet of the WSM Band in order to reduce the risk of falling into this band (indicated by the red dashed line in (**Figure 2-1**). When lake stages are below 12 feet, NGVD, releases would only be made if the lake was rising rapidly (greater than 0.15 feet per week on average) to attenuate the rate of rise. Releases would not be made if stages were declining and below 12 feet, NGVD.
- Allow the flexibility to make up to maximum practicable releases south to the WCAs when LORS Part C guidance (**Figure 1-4**) does not recommend release. Maximum practicable relates to the capacity in the Miami River, North New River, and Hillsborough canals to deliver water south while still providing the authorized flood control and the capacity in the state of Florida STAs to meet downstream water quality standards. Releases made south would be done for HAB operations only when in the Beneficial Use sub-band, Base Flow sub-band, and Low sub-bands and only if all WCAs were less than 0.25 feet above the max of the upper schedule (same conditions as LORS Part C guidance for High and Intermediate sub-bands). If releases south would cause any of the WCAs to rise more rapidly than is preferable, create or exacerbate high-water conditions, then releases may not be sent south from the lake. Hydrologic, ecological, and water supply conditions within the WCAs would be taken into account before sending water south, consistent with how releases south from Lake Okeechobee are managed under LORS. No impacts to the WCAs are anticipated for HAB operations.

These operations would only be utilized if conditions were met for HAB operations. Any one of the conditions below could warrant the use of HAB operations:

- If a HAB is currently in Lake Okeechobee, C-43, or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary.

- If the state of Florida declares a state of emergency due to HABs on Lake Okeechobee, C-43 or, C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary.
- If a HAB is anticipated to occur on Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary.
- If a HAB has occurred and caused harm, or have impacted public safety during the last 12 months within Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary.

The Corps will consult with partners on the latest science and tools predicting potential and/or indicating actual HAB presence on the Lake and Estuaries. Current tools available include National Oceanic and Atmospheric Administration's (NOAA) remote sensing assessment of HAB potential on the lake and estuaries as well as monitoring of HAB occurrence by the SFWMD and FDEP.

Once the Corps determines that releases should be made south from the lake, the quantity and exact timing of those releases are determined by the SFWMD. They determine what maximum practicable flows are for that operation which includes the conveyance capacity of the EAA canals as well as the storage and treatment capacity of the STAs. If it is determined that no releases south can be made due to treatment capacity, then flows will not be made.

Operations under these circumstances could include:

- If any of the conditions above are met, the following represents the operational strategy:
    - Manage water to reduce the risk of transporting a bloom from Lake Okeechobee to the estuaries
    - Manage water to reduce risk of exacerbating a bloom in the estuaries
    - Manage water in anticipation of HAB conditions by making long term low volume releases before and after a HAB event and not during (subject to considerations identified in the operational strategy)

Water Bank for HAB Operations:

Releases made above or under LORS guidance will be tracked for 12 months (between 1 February and 31 January). This time period was chosen to correspond with the beginning of the endangered everglades snail kite nesting period, for which Lake Okeechobee is considered a critical habitat. The volume of releases that are called for under LORS 2008 but are not made (releases made under the LORS Part D guidance as seen in **Figure 1-5**) will be banked as a "deposit" and have a positive volume. Releases made that exceed those called for under LORS Part D guidance will be banked as a "withdrawal" or "loan" and have a negative volume. Values will be summed for a total bank amount which can be either positive or negative. When the bank has a surplus (+) sum at any time then more releases could be made and when the bank has a deficit (-) at any time it means releases could be held back. The goal will always be to get to a zero balance by 1 February. Conditions which may impact the zero sum could be, but not limited to, a large rainfall or tropical event, drought, La Niña or El Niño, or environmental concerns. Tracking and banking these release is intended to maintain all project purposes of Lake Okeechobee to the same levels as the 2008 LORS. Actual releases made will be based on the targeted weekly averages at the associated structure (S-79 and S-80) so the time step will be based on the release decision (often weekly but could vary). By 1 February, if in the unlikely chance that a balance is still present in the water bank, the balance would be carried over to the following year in order to minimize impacts.

Releases south are made for multiple reasons to include water supply (for agricultural, municipal, and industrial uses as well as to prevent salt water intrusion along the east coast of Florida) as well as regulatory releases from Lake Okeechobee. Under LORS 2008 when Part C does not call for lake releases to be sent south, the water for water supply may still be sent as required. Only lake water sent south to the STAs/WCAs as part of HAB operations would be tracked and banked. It is not anticipated that releases south will be held back during HAB operations, as there is minimal risks associated with sending water south when blooms are occurring. Releases made south when Part C does not call for them will be banked as negative volumes.

The water bank will be in one bank account for all HAB operations where releases made or held back would be all put into the same bank. Releases may be done east, west, or south depending on where releases could be beneficial or have minimal impacts. Needs may include, but not limited to, environmental releases to maintain salinities within the estuaries or to hydrate the WCAs during important nesting periods. The balance of the water bank will be reported periodically in the Lake Okeechobee Periodic Scientists Call and summarized after one year of this deviation being in place. Reference **Table 1** in **Appendix A.**

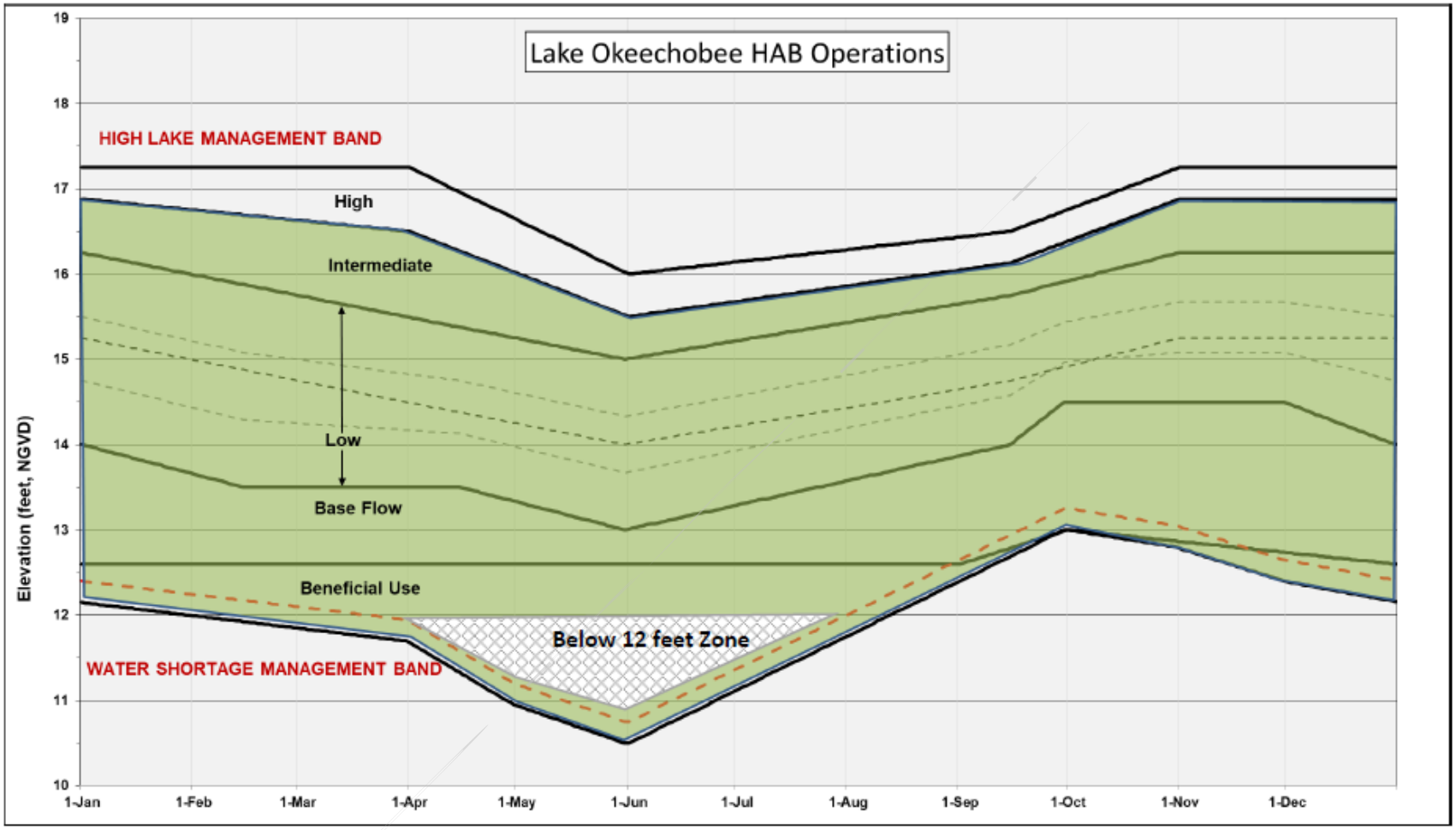

Figure 2-1. Range of lake stages where east/west HAB operations could occur (shaded green area) with cutbacks in deviation releases implemented 0.25 feet above Water Shortage Management Band (red dashed line). Below 12 feet zone is shown (hatched area) to show where releases would not be made except if the lake was rising.

Alternative C (HAB Operational Strategy Revised): Alternative C is similar to Alternative B except for the following two conditions:

- Alternative C would not limit the releases at S-79 and S-80 to the above identified thresholds. Releases at S-79 would allow to be made up to or greater than 2,800 cfs at S-79 and up to or greater than 2,000 cfs to the St. Lucie Estuary (S-80, S-48, S-49 and Gordy road structures).
- Alternative C would not include cut back of HAB releases if lake levels fell within 0.25 feet of the WSM Band. HAB releases would occur within the WSM Band.

Alternative D: Alternative D is similar to Alternative A (No Action Alternative), except Lake Okeechobee water releases would be held back when the following HAB criteria listed below were met, regardless of whether preemptive releases were made, except for when in the High Lake Management Band.

- If a HAB is currently in Lake Okeechobee, C-43, or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary.
- If the state of Florida declares a state of emergency due to HABs on Lake Okeechobee, C-43 or, C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary.
- If a HAB is anticipated to occur on Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary.
- If a HAB has occurred and caused harm, or have impacted public safety during the last 12 months within Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary.

2.1 Issues and Basis for Choice

The planned deviation is envisioned to enhance the ability of the Corps to respond to HABs within its authority. The alternatives described in **Section 2** were considered and evaluated against the project purpose and need. Potential effects on the human environment were also evaluated (**Section 4**).

Alternative A, the No Action Alternative, would maintain operations as defined in LORS 2008. Alternative A does not meet the agency goal as described in **Section 1.3**. Alternative A did not provide flexibility to hold back releases during HAB events of 2016 and 2018.

Alterative C would provide operational flexibility to manage water to reduce the risk of transporting a HAB from Lake Okeechobee to the Northern Estuaries and/or exacerbating a HAB in the Northern Estuaries; however the defined discharge rates at S-79 and S-80 are at the thresholds that have the potential to adversely affect the Caloosahatchee and St. Lucie Estuaries. The Caloosahatchee and St. Lucie Estuaries both receive large releases from Lake Okeechobee as well as their local basins during wet years, and suffer from too little flow during excessively dry years. Flow targets have been developed for the Northern Estuaries by RECOVER to achieve desired salinity ranges in the estuaries to meet the needs of key indicator species such as oysters and submerged aquatic vegetation (RECOVER 2007a). Within the Caloosahatchee Estuary, targets are based on freshwater from the C-43 canal at the S-79 structure where the mean monthly inflow should be maintained between 450 and 2,800 cfs (C-43 Basin runoff and Lake Okeechobee regulatory releases). Flows less than 450 cfs are considered undesirable since these flow levels allow salt water to intrude, raising salinity above the tolerance limits for communities of submerged aquatic vegetation in the upper estuary. Flows greater than 2800 cfs cause mortality of marine seagrasses and

oysters in the lower estuary and at flows greater than 4500 cfs, seagrasses begin to decline in San Carlos Bay. Within the St. Lucie Estuary, targets are based on freshwater releases at the S-80, S-48, S-49 and Gordy road structures where the target frequency of mean biweekly flows should be maintained between 350 and 2,000 cfs. Based on the salinity tolerances of oysters, flows less than 350 cfs result in higher salinities at which oysters are susceptible to increased predation and disease. Flows in the 350-2000 cfs range produce tolerable salinities. Flows greater than 2000 cfs result in low, intolerable salinity within the estuary. Flows greater than 3000 cfs damage seagrasses in the Indian River Lagoon. Releases east and west under Alternative C would greater than 2,800 cfs at S-79 and greater than 2,000 cfs to the St. Lucie Estuary (S-80, S-48, S-49 and Gordy road structures). Alternative C may impact oyster spawning, the salinity envelope, water quality and overall ecological health in the St. Lucie and Caloosahatchee Estuaries by utilizing high volume releases during HAB operations.

Alternative C may also increase the probability of extreme low lake stages if conditions turn unexpectedly drier than normal. The benefits of seasonally variable water levels within the range of 12.5 feet, NGVD (June-July low) and 15.5 feet, NGVD (November-January high) on the plant and animal communities of Lake Okeechobee has been documented (RECOVER 2007b). Falling water levels in late winter to spring benefit wading birds by concentrating prey resources in the littoral zone where those birds forage (Smith et al. 1995), water levels near 12.5 feet, NGVD benefit submerged plants and bulrush by providing optimal light levels for photosynthesis in the summer months and variation in the prescribed range results in annual flooding and drying of upland areas of the littoral zone, which favors development of a diverse emergent plant community. However, extreme low stage (below 10 feet, NGVD) can result in desiccation of the entire littoral zone, the shoreline fringing bulrush zone, and nearly all of the lake area that would otherwise support submerged plants. As a consequence, in-lake habitat for reptiles, amphibians, wading birds, apple snails, or fish that depend on aquatic plant-dominated regions for successful foraging and recruitment is severely compromised. Extreme low stage also encourages invasive exotic plants such as torpedograss and Melaleuca to establish in areas of the littoral zone where they did not formerly occur, displacing native vegetation. Invasive plants can outcompete the endangered Okeechobee Gourd for habitat. Recovery from the impacts of prolonged low stage events (below 10 feet, NGVD) is slow, requiring multiple years of appropriate stage regime to recover. Extreme low stages also threaten the recovery of the endangered Everglade snail kite, Florida bonneted bat, and the threatened wood stork. Low lake stages limit foraging opportunities for the snail kite, Florida bonneted bat, and wood stork, and impact nesting success of the snail kite. Alternative C may impact the littoral and near-shore areas of Lake Okeechobee by decreasing stage during HAB operations.

Furthermore, under Alternative C releases would not be cut back if lake levels were within 0.25 feet of the WSM Band. Alternative C may increase the probability of falling into the WSM Band, presenting a potential risk to water supply.

Alternative D satisfies the goal of reducing releases to the estuaries during HABs; however, this alternative poses the most risk to increased frequency of high lake stages. Stages higher than 15.5 feet, NGVD are harmful to Lake Okeechobee emergent and submerged aquatic vegetation that are critical habitat to the endangered Everglades snail kite and provide critical ecological services for fish and wildlife, reduced water quality, and fisheries. This alternative would also increase the flood risk to surrounding Lake Okeechobee communities, agriculture, and downstream Rottenberger, Holey Land, and WCAs. This alternative would increase the lake stage and dam risk during and following actions to hold water back in the lake. The HHD has the highest possible Dam Safety Action Classification (DSAC) rating of 1 and it is not appropriate to alter lake operations such that they would increase risk to the HHD. There is unprecedented construction on HHD to rehabilitate and the dam and reduce risk. The LOSOM will go into

effect when HHD rehabilitation is complete, which will allow the LOSOM schedule to consider the post-rehabilitation dam risk.

Based upon the environmental effects analysis conducted within this EA, Alternative B is the Preferred Alternative. Alternative B is expected to best meet the agency goal and need identified in **Section 1.3** while minimizing any negative effects. Lake releases to tide (estuaries) should be limited to a pulse release from Lake Okeechobee not to exceed 2,000 cfs measured at S-79 and 730 cfs measured at S-80 to be protective of the Northern Estuaries. HAB operations under Alternative B would be limited under these identified constraints. Lake stage management would still have the goal of increased frequency within the desired envelope (12.5 feet, NGVD to 15.5 feet NGVD) protective of lake ecology. HAB operations would not result in more frequent or prolonged departures of lake stage outside of the prescribed envelope nor increase the occurrence of extreme high and low lake stage events as compared to LORS. In addition, when lake stages are below the ideal ecological low stage of 12 feet as defined in the 2005 Lake Okeechobee Conceptual Ecological Model releases would only be made if the lake was rising rapidly (greater than 0.15 feet per week on average). This action would be done to avoid risk of extreme low lake levels that can impact Lake Okeechobee ecology and threatened and endangered species. Attenuating the rate of rise on the lake can be ecologically beneficial to the lake ecology, including submerged aquatic vegetation and nesting birds and therefore have a positive impact. Releases would not be made if stages were declining (7 day average declining consistently for multiple weeks) and below 12 feet to try to avoid impacting Everglades Snail Kite, other nesting birds on Lake Okeechobee, and the overall lake ecology.

Action is needed to deviate from current water management practices for the purpose of allowing greater flexibility with water management decisions when HABs are a forecasted or present in Lake Okeechobee, the St. Lucie or Caloosahatchee estuaries or the system of canals that connect them. The Corps operates in order to minimize risk of HABs and their negative effects in the Northern Estuaries. Alternative B will enhance the ability of the Corps to respond to HABs within its authority of balancing multiple project purposes, while minimizing potential undesired effects not already considered under the LORS 2008 SEIS (USACE 2008).

2.2 Alternatives Eliminated from Detailed Evaluation

Alternative C and D were eliminated from detailed evaluation as described in **Section 2.1**. All of the alternatives considered in **Section 2** have been carried through the remainder of the EA for detailed evaluation.

2.3 Preferred Alternative

Summary details of the Preferred Alternative (Alternative B) are listed in **Section 2** and **Appendix A**.

3 AFFECTED ENVIRONMENT

The following provides a brief description of the affected environment within the study area. A full description of the affected environment can be found in the LORS 2008 Final SEIS and is incorporated by reference into this document (USACE 2008). This information is available for review at http://www.saj.usace.army.mil/Portals/44/docs/h2omgmt/LORSdocs/ACOE_STATEMENT_APPENDICES_A-G.pdf.

Lake Okeechobee is a subtropical lake in south central Florida with a surface area of 730 square miles and an average depth of nine feet. Lake Okeechobee is a major feature of the Kissimmee-Okeechobee-Everglades system, which is a continuous hydrologic system extending from central Florida south to Florida Bay. Lake Okeechobee provides a number of values to society and nature including water supply for agriculture, urban areas and the environment, flood protection, a multi-million dollar sport fishery, and habitat for many birds and animals, including endangered and threatened species. These values of Lake Okeechobee have been threatened in recent decades by excessive phosphorus loading transported by sediment, harmful high water levels, and rapid expansion of exotic plants.

As a result of the lake's shallow depth, wind is a major influence on Lake Okeechobee. Prior to construction of a perimeter dike system, Lake Okeechobee was much larger than it is now, with an extensive wetland littoral zone along the shoreline. Today, Lake Okeechobee is constrained within the Herbert Hoover Dike, and the littoral zone is much smaller. As a result, when water levels are above 17 ft., NGVD, the entire littoral zone is flooded; leaving minimal habitat for wildlife that requires exposed ground. When water levels are below 11 feet, NGVD, the entire marsh is dry, and not available as habitat for fish or other aquatic life. Lake Okeechobee's littoral zone is characterized by emergent and submerged vegetation covering an area of approximately 150 square miles (25 percent of Lake Okeechobee's surface area), and is primarily located along the western shore of Lake Okeechobee. The littoral zone is sensitive to nutrient loading and light availability. The vegetation and cover types within the Lake Okeechobee region have been greatly altered during the last century. At present, the littoral zone vegetation consists of many native plant species but also consists of many less desirable and invasive and/or exotic species. The invasion of exotic vegetation has impacted the health and productivity of the littoral zone plant community. Anthropogenic disturbances such as altered hydrology and pollution, along with nutrients, can directly and indirectly affect the health of Lake Okeechobee.

The Caloosahatchee River is the major source of freshwater for the Caloosahatchee Estuary. Alterations to the Caloosahatchee River and watershed over the past century have resulted in a major change in freshwater inflow to the estuary. The Caloosahatchee River was originally a shallow, meandering river with headwaters in the proximity of Lake Hicpochee, near Lake Okeechobee. In the early 1900s, a man-made canal was constructed connecting Lake Okeechobee to the Caloosahatchee River. Today, the river extends from Lake Okeechobee to San Carlos Bay. The river now functions as a primary canal (C-43) that conveys both runoff from the Caloosahatchee watershed and releases from Lake Okeechobee. The canal has undergone numerous alterations including channel enlargement, bank stabilization, and a series of three lock and dam structures. The final downstream structure, W.P. Franklin Lock and Dam (S-79), demarcates the beginning of the estuary, and acts as a barrier to salinity and tidal action, which historically extended east near the LaBelle area. As a result of hydrological changes to this ecosystem, the timing, distribution, quality, and volume of freshwater entering the estuary from the watershed and Lake Okeechobee has resulted in negative ecological impacts. Despite these impacts, the Caloosahatchee Estuary continues to be an important environmental and economic resource.

The St. Lucie Estuary, which is part of the Indian River Lagoon ecosystem, is located on the east coast of Florida. The St. Lucie River is approximately 35 miles long and has two major forks, the North and the South, that flow together and then eastward to the Indian River Lagoon and Atlantic Ocean at the St. Lucie Inlet. Historically, the St. Lucie River system was a freshwater stream flowing into the Indian River Lagoon. An inlet (today referred to as the St. Lucie Inlet) was dug in the late 1800s by local residents to provide direct access to the Atlantic Ocean, thus changing the St. Lucie from a river to an estuary. Then in the early 1900s, the St. Lucie Canal (C-44) was constructed providing an outlet from Lake Okeechobee to the St. Lucie River. The C-44 Canal is used for navigation and releases from Lake Okeechobee. As a result, freshwater flow from C-44 into the estuary tends to be excessive at times, in particular during the wet season, leaving the estuary with too much freshwater. Other major canals constructed in the watershed contributing to fresh water inflow into the estuary include C-23 and C-24 canals. A combination of excessive freshwater inflows, runoff, nutrient loading, and shoreline alterations all contribute to the declining ecological health of the St. Lucie Estuary.

All of the Northern Estuaries are host to plant and animal communities such as seagrass beds, macroalgae, mangroves, oyster bars, birds, fishes, corals, sponges and endangered and threatened species. Additionally, the estuaries attract a variety of commercial, recreational and educational activities such as fishing, boating, ecotourism, and sightseeing.

The EAA is located on the southern tip of Lake Okeechobee and is one of the most productive agriculture regions in the State. Lake Okeechobee provides water south to the EAA through three structures, S-351, S-354, and S-352. The EAA, covering 1,122 square miles south of Lake Okeechobee is the largest contiguous area of historic Everglades cover that has been converted by land use practices. The EAA historically consisted of several different plant communities. A dense swamp of pond apple, willow and elderberry formed broad bands along the southern rim of Lake Okeechobee. The remainder of what is now the EAA was dominated by sawgrass marshes. The present EAA contains primarily agricultural cropland.

The WCAs comprise about one-third of the original Everglades. The area is currently divided into five shallow water impoundments surrounded by levees and canals. These impounded marshes are managed to provide flood protection to the cities and farms to the east and to provide water for agricultural and municipal use during the dry season. The WCAs are vegetated with a mosaic of habitat types dominated by sawgrass. Nearly all of the WCAs are a patterned peatland, consisting of long, linear sawgrass ridges interspersed with teardrop-shaped tree islands (hammocks) and willow strands. Tree islands are a unique feature of the Everglades ecosystem. Tropical hardwoods are found on some of the relatively unaltered tree islands in the southern portion of the area. The landscape pattern of ridge and slough has been altered significantly but appears largely intact in portions of the WCAs and into ENP. The ridge and slough patterns were developed in broad, shallow to intermediate depth basins with peat substrate in response to the original hydrologic flow regimes of the Everglades.

4 ENVIRONMENTAL EFFECTS

Potential environmental effects of current water management operations (No Action Alternative) are thoroughly evaluated within the LORS 2008 SEIS and are hereby incorporated by reference (USACE 2008).

The planned deviation will allow the flexibility to make slightly larger releases east and west than LORS 2008 Part D (establishes allowable Lake Okeechobee releases to tide (estuaries)) calls for and make releases south when LORS Part C (establishes allowable Lake Okeechobee releases to the WCAs) does not recommend releases within the Beneficial Use sub-band, Base Flow sub-band, Low sub-band, and the Intermediate sub-band. These slightly larger releases when risk of transporting HABs is low will allow greater flexibility to reduce releases during times when HABs are a threat or are present in the lake or estuaries. The planned deviation would be implemented as soon as possible, but action may not be taken immediately and would depend upon the conditions set forth in this operational strategy. This deviation will be in effect for a minimum duration of one year. The Corps Water Management Section's assessment of hydrometerological conditions and stakeholder or agency input may suspend or discontinue the planned deviation due to impacts greater than expected/discussed within this EA. This deviation may be terminated at any time. Reevaluation of and possible extension of the planned deviation will occur after year one of implementation via memorandum to the South Atlantic Division Commander. Water bank summary information as well as any unexpected effects or challenges encountered during implementation will be evaluated in the memorandum. The planned deviation may extend until LORS 2008 is replaced by a new water control plan (LOSOM) anticipated in 2022. Implementation of the proposed action would be consistent with conditions outlined in the operational strategy (**Appendix A**).

Table 4-1. Summary of potential environmental consequences associated with implementation of the No Action Alternative and Alternative B.

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
Climate	No effect.	Same as Alternative A. No effect. Alternative B would not result in significant impacts to the climate of South Florida. The influence of climate change is not anticipated to alter the severity or nature of impacts resulting from Alternative B.
Study Area Land Use	No effect. Study area land use within the project area would not be expected to change from current conditions.	Same as Alternative A. No effect.
Hydrology	No effect. Hydrology within the project area would not be expected to change from current conditions.	Potential negligible effects on stages within Lake Okeechobee relative to Alternative A. The cumulative volume of water released under the planned deviation will be tracked against the volume held back that would have been released under LORS 2008. The objective will be to reach a net zero balance such that the total volume released between 1 February and 31 January each year is unchanged from the releases that would have taken place under the existing schedule. The overall volume of water released from Lake Okeechobee will not change, resulting in no net effect on lake stage at the end of the deviation period. Operations under the planned deviation will affect the timing of releases. There will be conditions which would lead to higher or lower releases and lake levels than those which would have been experienced under LORS 2008 alone. Presented below are two scenarios to describe potential effects on lake stage: Scenario 1: Advanced releases are made towards the beginning of the wet season in anticipation of a HAB within the Baseflow Sub-band, and then conditions turn unexpectedly drier than normal bringing stages down into the Beneficial Use Sub-band. There would be no lake releases to make up, due to lake stages in the Beneficial Use Sub-band – as LORS does not outline releases in this sub-band. In this case an assumption of a 30 day duration of advanced releases at 2,730 cfs is made (2,000 + 730 cfs – assuming all

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
		releases out of S-79 and S-80 came from Lake Okeechobee) which is 2,080 cfs over a Baseflow release of 650 cfs. Releasing 2,080 cfs for 30 days would affect lake stages by approximately 0.28 feet (123,740 ac-ft). This volume would have a nominal effect on water supply and starting stage for Everglade snail kite nesting the following dry season. This is considered the worst case scenario, but there is a low probability of this occurrence. Scenario 2: Advanced releases are made towards the beginning of the wet season in anticipation of a HAB, and then a large rain event comes across the lake, bringing the lake up multiple feet into the High Lake Management Band. The most recent example of this was 2017 Hurricane Irma, which brought the lake up very quickly and took many months to release water back down to safe levels. In a scenario like this, releases may not be held back, to zero out the water bank account, due to dam safety risks. In this scenario, it is likely that most project purposes would benefit from releasing water out of Lake Okeechobee, most especially flood risk management/dam safety. In this case if the same flow and duration assumptions were made as in Scenario 1 (2,080 cfs for 30 days), the lake would crest 0.28 feet lower than without HAB operations, reducing the dam safety risk than if no HAB operations were implemented. There would be no risk project purposes (water supply, fish and wildlife enhancement, navigation, and recreation). Potential negligible effects on stages within the WCAs relative to Alternative A. The planned deviation will allow the flexibility to make up to maximum practicable releases south to the WCAs when LORS Part C does not recommend release. Releases made south would be done for HAB operations only when in the Low, Baseflow, and Beneficial Use Sub-bands and only if conditions allow. Allowable conditions would include when all downstream WCAs are less than a quarter of a foot above the maximum of the upper Regulation Schedule zone of the downstream WCA(s) and would not contribute to or exacerbate high water events in the WCAs. Flows to the WCAs will be regulated by EAA canal and STA water quality treatment capacity.

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
Regional Water Management Operations (Water Supply and Flood Control)	No effect. Regional water management operations to include water supply and flood control would not be expected to change from current conditions.	Same as Alternative A. No effect. Slightly larger releases will allow greater operational flexibility to reduce releases during times when HABs are present or forecasted in the lake or estuary systems relative to Alternative A. Water supply conditions would also be evaluated throughout HAB operations. HAB operations would not be implemented in the WSM band or if significant impacts to water supply (such as risk of falling into the WSM) were high. A buffer of 0.25 feet above the WSM band would also trigger releases to be reduced or possibly ceased to reduce the risk of falling into this band (see red dashed line in **Figure 2-1**). Advanced releases would not be utilized if conditions such as drought or La Niña are forecasted, due to the risk to water supply. The Corps must weigh the risks of holding back releases and against risks associated with HABs. Dam safety risk, which is determined by the Corps' Dam Safety Officer (DSO), can be informed by tropical activity/forecasts, precipitation forecasts, lake level, projected lake level and many other factors. Alternative B would include consideration of all project purposes to minimize potential effects.
Geology and Soils	No effect. Geology and soils would not be expected to change from current conditions.	Same as Alternative A. No effect. Reference *Hydrology* in above table for effects on lake stages. There will be conditions under Alternative B which would lead to higher or lower releases and lake levels than those which would have been experienced under LORS 2008 alone; however lake stage is not anticipated to drop below the extreme low stage more frequently under HAB operations. Extreme low stage (below 10 feet, NGVD) can result in desiccation of the entire littoral zone (RECOVER 2007b). Releases made south would be done for HAB operations only when in the Low, Baseflow, and Beneficial Use Sub-bands and only if conditions allow. Allowable conditions would include when all downstream WCAs are less than a quarter of a foot above the maximum of the upper Regulation Schedule zone of the downstream WCA(s). Flows to the WCAs will be regulated by canal and STA capacity. Alternative B is not expected to significantly change stages in the WCAs.
Vegetative Communities	Potential minor adverse effects. HABs that have occurred on Lake	Potential negligible effects on vegetative communities within Lake Okeechobee relative to Alternative A. Reference *Hydrology* in above table

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
	Okeechobee and in the downstream estuaries have impacted the quality of the estuarine environment and in lake ecology.	for effects on lake stages. The benefits of seasonally variable water levels within the range of 12.5 feet, NGVD (June-July low) and 15.5 feet, NGVD (November-January high) on plant communities in Lake Okeechobee has been documented. Water levels near 12.5 feet, NGVD benefit submerged plants and bulrush by providing optimal light levels for photosynthesis in the summer months and variation in the prescribed range results in annual flooding and drying of upland areas of the littoral zone, which favors development of a diverse emergent plant community (RECOVER 2007b). Extreme low stage (below 10 feet, NGVD) can result in desiccation of the entire littoral zone, the shoreline fringing bulrush zone, and nearly all of the lake area that would otherwise support submerged plants. The spread of terrestrial weedy plants has also been documented at extreme low lake stages (RECOVER 2007b). There will be conditions under Alternative B which would lead to higher or lower releases and lake levels than those which would have been experienced under LORS 2008 alone; however lake stage is not anticipated to drop below the extreme low stage more frequently under HAB operations. When lake stages are below 12.5, feet, NGVD releases would only be made if the lake was rising rapidly (greater than 0.15 feet per week on average). Attenuating the rate of rise on the lake can be beneficial to lake ecology. At the extreme high stage (greater than 17 feet, NGVD), it has been documented that wind driven waves can cause large scale loss of submerged and emergent plans by physical uprooting. Reductions in the duration and severity of high water stages is expected to be more favorable for maintenance or more diverse vegetative communities in the littoral zone. When extreme high stages are of prolonged duration and light penetration is inhibited by turbid water, adverse impacts to SAV can occur (RECOVER 2007b). There will be conditions under Alternative B which would lead to higher or lower releases and lake levels than those which would have been experienced under LORS 2008 alone; however the frequency of extreme high stages is not anticipated to increase under HAB operations.

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
		Releases of freshwater flow from Lake Okeechobee along with other tributary inflows and stormwater runoff can cause large fluctuations in salinity. These fluctuations often expose estuarine biota to salinities outside of their tolerance ranges. HAB operations would be below the harm thresholds for the Caloosahatchee and St. Lucie estuaries. Reference **Section 2.1** for further information on flow targets developed to achieve desired salinity ranges in the estuaries to meet the needs of SAV. Under Alternative B, HAB operations would be limited to 2,000 cfs measured at S-79 and up to 730 cfs measured at S-80, and would only be applicable when LORS Part D recommends up to 450 cfs measured at S-79 and up to 200 cfs as measured at S-80 or when Part D does not specifically recommend releases (Beneficial Use Sub-band).. This is below the harm threshold for the Caloosahatchee River of 2800 cfs which is protective of salinities at Shell Point for SAV and a salinity range of 10 -30 practical salinity units (PSU) between Cape Coral and Shell Point. Flows greater than 2800 cfs depress salinity in the lower and threaten the marine shoal grass typical of this region. The maximum 2000 cfs would result in a range of 13-27 PSU (RECOVER, 2014). This is also below the 2000 cfs threshold on the St. Lucie that would cause salinities to be in the 10-26 PSU in the middle estuary. This is also far below the 3000 cfs threshold that would impact salinities and potentially water clarity issues at the A1A bridge just west of seagrass habitats. Releases made south would be done for HAB operations only when in the Low, Baseflow, and Beneficial Use Sub-bands and only if conditions allow. Allowable conditions would include when all downstream WCAs are less than a quarter of a foot above the maximum of the upper Regulation Schedule zone of the downstream WCA(s). Flows to the WCAs will be regulated by canal and STA capacity. Alternative B is not expected to significantly change stages in the WCAs. Potential effects to vegetation in the WCAs including tree islands due to extreme high water events would not occur.
Fish and Wildlife Resources	Potential minor adverse effects. HABs that have occurred on Lake Okeechobee and in the downstream	Potential negligible effects on fish and wildlife within Lake Okeechobee relative to Alternative A. Reference *Hydrology* in above table for effects on lake stages. The benefits of seasonally variable water levels within the range

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
	estuaries have impacted the quality of the estuarine environment and in lake ecology.	of 12.5 feet, NGVD (June-July low) and 15.5 feet, NGVD (November-January high) on animal communities of Lake Okeechobee has been documented. Extreme low stage (below 10 feet, NGVD) can result in desiccation of the entire littoral zone. As a consequence, in-lake habitat for reptiles, amphibians, wading birds, apple snails, or fish that depend on aquatic plant-dominated regions for successful foraging and recruitment is severely compromised. Adverse effects at low lake stages also include potential losses to apple snail populations. Even though adverse effects occur during low lake stages, there are a number of benefits to the ecosystem that also occur, such as drying and oxidation of accumulated organic detritus in the littoral zone, favorable conditions for marsh fires that burn away cattail and torpedo grass thatch, and expose moist soil for germination (RECOVER 2007a). There will be conditions under Alternative B which would lead to higher or lower releases and lake levels than those which would have been experienced under LORS 2008 alone; however lake stage is not anticipated to drop below the extreme low stage more frequently under HAB operations. When lake stages are below 12 feet, NGVD, release would only be made if the lake was rising rapidly (greater than 0.15 feet per week on average). Attenuating the rate of rise on the lake can be beneficial to lake ecology. It is not intended that releases should cause high or unnatural recession rates and if this occurs releases will be considered for adjustment. The Everglade snail kite and wood stork are known to occur within the lake. Under Alternative B, HAB operations would be limited to 2,000 cfs measured at S-79 and up to 730 cfs measured at S-80, and would only be applicable when LORS Part D recommends up to 450 cfs measured at S-79 and up to 200 cfs as measured at S-80 or when Part D does not specifically recommend releases (Beneficial Use Sub-band). Under this maximum release scenario, the recession rate per week would be 0.09 feet per week, which is below the 0.16 feet per week recession rate identified to be protective of the Everglade snail kite (Fletcher et al. 2017). Rapid recession may result in stranded adult snails that may be unavailable to snail kites, consequently reducing snail kite foraging and breeding suitability, and juvenile snail kite survival. Rapid recessions may also reduce suitability of nesting substrates (nest collapse in

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
		cattails), or dewatering the area around the nest thereby facilitating nest predation. This recession rate is also below the 0.5 feet recession per month that is important for wood stork foraging. HAB operations would be below the harm thresholds for the Caloosahatchee and St. Lucie estuaries. Reference **Section 2.1** for further information on flow targets developed to achieve desired salinity ranges in the estuaries to meet the needs of key indicators such as oysters. HAB operations would be limited to 2,000 cfs measured at S-79 and up to 730 cfs measured at S-80, and would only be applicable when LORS Part D recommends up to 450 cfs measured at S-79 and up to 200 cfs as measured at S-80 or when Part D does not specifically recommend releases (Beneficial Use Sub-band). This is below the harm threshold for the Caloosahatchee River of 2800 cfs which is protective of salinities at shell point for oysters and a salinity range of 10 -30 PSU between Cape Coral and Shell Point. The maximum 2000 cfs would result in a range of 13-27 PSU (RECOVER, 2014). This is also below the 2000 cfs threshold on the St. Lucie that would cause salinities to be in the 10-26 PSU range for oysters in the middle estuary. Releases made south would be done for HAB operations only when in the Low, Baseflow, and Beneficial Use Sub-bands and only if conditions allow. Allowable conditions would include when all downstream WCAs are less than a quarter of a foot above the maximum of the upper Regulation Schedule zone of the downstream WCA(s). Flows to the WCAs will be regulated by canal and STA capacity. Potential adverse effects to fish and wildlife resources in WCA 3A such as mammals due to extreme high water events is not anticipated. Flows to the WCAs will be regulated by canal and STA capacity. Ecological conditions within Lake Okeechobee, the estuaries, or the WCAs would also be evaluated and if recommendations by other agencies were made against releases for risk of causing ecological harm then releases may not be made. Lake Okeechobee is critical habitat for the endangered Everglades Snail kite and water levels changes can impact this species.

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
		Receding water levels at a rate higher than 0.5 feet/month in addition to other conditions are identified within the LORS 2008 Biological Opinion. It is not intended that releases should cause high or unnatural recession rates and if this occurs releases will be adjusted. Ecological conditions within the WCAs would also be evaluated, as per normal operations under LORS 2008. If water levels or rates of rise within the WCAs caused by these HAB operations were forecasted to cause harm then releases south to the WCAs may not be made.
Threatened and Endangered Species	U.S. Fish and Wildlife Service (USFWS) Species determinations have been addressed under the 2008 LORS Biological Opinion updated in 2018. Effects determinations are as follows:: No effect for the endangered Cape Sable seaside sparrow (CSSS) (*Ammodramus maritimus mirabilis*) and its designated critical habitat, the threatened Northern crested caracara (*Caracra cheriway*), the threatened Eastern indigo snake (*Drymarchon corais couperi*), and Florida panther (*Puma concolor coryi*); May Affect, Not Likely to Adversely Affect Florida manatee (*Trichechus manatus latirostris*) and its designated critical habitat, the endangered Florida bonneted bat (*Eumops floridanus*) the threatened wood stork (*Mycteria americana*), and the endangered Okeechobee gourd (*Cucurbita okeechobeensis* ssp. *okeechobeensis*); and May Affect, for the endangered Everglade snail kite (*Rostrhamus sociabilis plumbeus*), and its designated critical habitat.	The Corps acknowledges the potential usage and occurrence of threatened and endangered species and/or critical habitat within the study area. Correspondence dated July 10, 2019 was provided to USFWS and NMFS requesting concurrence on species determinations as a result of the proposed action. Reference **Appendix B**. USFWS and NMFS are not required to respond with the Corps' determination of no effect for the species identified in the column to the left under the No Action Alternative. The Corps is recommending measures to avoid and minimize any additional effect to the Everglade snail kite and its designated critical habitat. These measures include achieving net zero stage difference from LORS releases prior to the start of peak nesting season in February (FWC, 2019 website) to avoid low stage effects on nest initiation (Fletcher, 2017). In addition, recession rates will be monitored weekly to avoid 30 day recession rates that are greater than 0.5 feet per month (see operational strategy for further clarification on calculation). If recession rates are higher than the 0.5 feet per month threshold based on a given weekly assessment, then flows would be reduced to what is recommended under LORS 2008 based on the current lake stage. The Corps agrees to maintain open and cooperative communication with the USFWS and NMFS during the planned deviation, in addition to coordination with all agencies through the periodic scientists calls (PSCs).

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
	National Marine Fisheries Service (NMFS) species determinations were addressed in consultations occurring in 2007 and 2015. They are: May Affect, but Not Likely to Adversely Affect Johnson's seagrass (*Halophila johnsonii*) and its designated critical habitat, the smalltooth sawfish (*Pristis pectinata*) and its designated critical habitat. No effect determinations were made for the loggerhead sea turtle (*Caretta caretta*), the leatherback sea turtle (*Dermochelys coriacea*), the Kemp's ridley sea turtle (*Lepidochelys kempii*), hawksbill sea turtle (*Eretmochelys imbricata*), and the green sea turtle (*Chelonia mydas*). The Corps is in the process of evaluating effects determinations on newly listed species for NMFS after conducting informal consultation in June 2019. Newly listed species include the rough cactus coral (*Mycetophyllia ferox*), the lobed star coral (*Orbicella annularis*), the mountainous star coral ((*Orbicella faveolata*), the boulder star coral (*Orbicella franksi*), the Elkhorn coral (*Acropora palmata*), the Staghorn coral (*Acropora cervicornis*), the Nassau grouper (*Epinephelus striatus*), the Giant manta ray (*Manta birostris*)	

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
	and the oceanic white tip shark (*Carcharhinus longimanus*).	
Essential Fish Habitat	Potential minor adverse effects. HABs that have occurred on Lake Okeechobee and in the downstream estuaries have impacted the quality of the estuarine environment.	No effect. HAB operations would be below the harm thresholds for the Caloosahatchee and St. Lucie estuary habitats and salinity zones that are designated EFH and Habitat Areas of particular Concern for Federally managed fishery species. Reference **Section 2.1** for further information on flow targets developed to achieve desired salinity ranges in the estuaries. Alternative B would not result in potential adverse effects to estuarine and marine resources including EFH.
Water Quality	No change from current conditions. HABs will continue to occur periodically dependent on rainfall patterns, climate patterns (primarily wind regime), nutrient loading to Lake Okeechobee and estuaries and other factors that may influence HAB/turbidity/nutrients in the water column and SAV (helps reduce sediment resuspension as well as sequester nutrients, resulting in -less available for HAB events). The STA's have been significantly overloaded over the past few years (designed to handle average of 60 thousand acre feet per year (k-ac ft/yr) with loading of 200 to 300 k-ac ft/yr over the past 4 years.	Reduced deliveries of freshwater during prime HAB season to the estuaries would help minimize increases in habitat area for fresh water blooms. Blue green algae from Lake Okeechobee are a freshwater species that die in saline conditions. This is expected to help dampen the intensity of estuarine fresh water HAB events. By making releases to the estuaries during the freshwater HAB offseason, the potential for having to make high steady releases to the estuaries during the fresh water HAB season is reduced. High steady (non pulse) flows to the estuaries reduces tidal flushing and increases stratification of the water column. Reduced tidal flushing of the canals etc. and increased stratification of the water column is believed to enhance freshwater bloom formation conditions of Microcytis A. Deliveries of the STA's above design treatment capacity is not expected to change under Alternative B. In general the design capacity of the STA's (designed for 60 k-ac ft/yr from Lake Okeechobee annual average based on a long-term record of required treatment capacity for EAA basin runoff) needs to be considered in the larger context. Alternative B is not expected to cause the STAs to exceed design capacity, because releases south will only be made to the maximum practicable (consistent with LORS Part C). Once the Corps determines that releases should be made south from the lake, the quantity and exact timing of those releases are determined by the SFWMD. They determine what maximum practicable flows are for that operation which includes the conveyance capacity of the EAA canals as well as the storage and treatment capacity of the STAs. If it is determined that no releases south can be made due to treatment capacity, then flows will not be made. The intent of this deviation is to deliver the same volume of water

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
		during a 12 month period (between 1 February and 31 January) but to change the timing of deliveries (prior to and after peak freshwater algal bloom conditions). Releases made above or under LORS guidance will be tracked such that the goal is a net zero sum at the end of the 12 month period (between 1 February and 31 January). Conditions which may impact the zero sum could be, but not limited to, a large rainfall or tropical event, drought, La Niña or El Niño, or environmental concerns. Due to this tracking and banking, assuming the normal range of wet and dry season hydrologic variability, there is no expected net increase in nutrient deliveries projected to be delivered to the south, east and west of Lake Okeechobee. By 1 February, if in the unlikely chance that a balance is still present in the water bank, the balance would be carried over to the following year in order to minimize impacts. For additional details please refer to **Appendix A**.
Hazardous, Toxic, and Radioactive Wastes	No effect.	No effect. Alternative B would not result in the discovery or mobilization of HTRW since there is no excavation or other construction activities being considered.
Air Quality	No effect. Air quality within the project area would not be expected to change from current conditions.	Same as Alternative A. No effect.
Noise	No effect. Noise levels within the project area would not be expected to change from current conditions.	Same as Alternative A. No effect.
Aesthetics	Potential minor adverse effects. HABs that have occurred on Lake Okeechobee and in the downstream estuaries, have detracted from current appearances (i.e. clarity of water column, fish kills).	Potential negligible to minor beneficial effects. Alternative B consists of an operational change to LORS 2008 and does not include construction of permanent structures or structural modifications to existing C&SF Project features. As such, the existing landscape profile would not be altered. Alterative B would provide operational flexibility to manage water to reduce the risk of transporting a HAB from Lake Okeechobee to the Caloosahatchee and St. Lucie Estuaries and/or exacerbating a HAB in these areas. Alternative B may enhance the aesthetics of the aquatic environment as HABs are aesthetically unpleasing.
Socioeconomics	Potential moderate adverse effects. HABs that have occurred on Lake Okeechobee and in the downstream	Potential negligible to minor beneficial effects. Alterative B would provide operational flexibility to manage water to reduce the risk of transporting a HAB from Lake Okeechobee to the Caloosahatchee and St. Lucie Estuaries

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
	estuaries, have impacted surrounding communities that are dependent on tourism, recreation, and real estate and have led to economic losses. HABs pose an immediate threat and impact to valuable natural resources that underpin local economies.	and/or exacerbating a HAB in these areas. Economic losses to the Caloosahatchee and St. Lucie estuaries associated with HABs in recent years is assumed to be significant (research is being done to quantify this but it is not available at the time of this EA) and reducing risk of impacts from HABs will reduce the risk of associated economic losses. Alternative B is expected to reduce economic losses that could result from HABs. The presence of HABs within Lake Okeechobee may impact recreational use, as they are aesthetically unpleasing and present a human health and safety risk. However, the number and duration of HABs in Lake Okeechobee is not expected to change as a direct result of Alternative B. The Corps does not have influence over the main factors (sunlight, nutrient loads, wind conditions, temperature and still/stagnant/stratified water conditions) controlling bloom conditions. The lake releases the Corps is able to make are small relative to the volume/extent of Lake Okeechobee and cannot disrupt stratification of the water column within the lake.
Recreation	Potential moderate adverse effects. HABs that have occurred on Lake Okeechobee and in the downstream estuaries, have impacted surrounding communities that are dependent on tourism and recreational boating and fishing have led to the closure of recreational areas.	Potential negligible to minor beneficial effects. Alterative B would provide operational flexibility to manage water to reduce the risk of transporting a HAB from Lake Okeechobee to the Caloosahatchee and St. Lucie Estuaries and/or exacerbating a HAB in these areas. Alternative B may benefit recreation within the Caloosahatchee and St. Lucie Estuaries by reducing the potential closure of recreational areas due to HABs. Recreation is an authorized project purpose for both the Okeechobee Waterway and the C&SF Project. There are abundant recreational facilities within the project area, both private and public; however, no specific water management operations are required for this purpose. Lake and canal levels under LORS 2008 are not specifically managed for recreation, although lake levels do affect recreation facilities. For example, boat launching ramps, pleasure crafts, sightseeing vessels, bank, and small boat fishing are all influenced by lake levels. Occurrence of low water events that may impact recreational boat users navigating Lake Okeechobee and accessing the lake from local boat ramps are not anticipated under Alternative B. Reference *Hydrology* in above table for effects on lake stages.

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
		The presence of HABs within Lake Okeechobee may impact recreational use, as they are aesthetically unpleasing and present a human health and safety risk. However, the number and duration of HABs in Lake Okeechobee is not expected to change as a direct result of Alternative B. The Corps does not have influence over the main factors (sunlight, nutrient loads, wind conditions, temperature and still/stagnant/stratified water conditions) controlling bloom conditions. The lake releases the Corps is able to make are small relative to the volume/extent of Lake Okeechobee and cannot disrupt stratification of the water column within the lake.
Cultural Resources	No effect.	The changing of timing of water releases to manage HABs would not change the water levels outside the established regulation schedules to the WCAs, where cultural resources and tree islands with historic properties or potential historic properties are present. Operations under Alternative B would affect the timing of releases; the overall volume of water released from Lake Okeechobee would not change. There would be no change from the existing condition for purposes of considering effects to cultural resources or historic properties. Furthermore, the release of water to tide has no potential to effect cultural resources or historic properties. Therefore, the Corps has determined the proposed deviation has no potential to effect historic properties pursuant to 36 CFR § 800.3(a)(1) and consideration given under the NEPA.
Native Americans	No effect	No effect. The Corps recognizes that the Seminole Tribe of Florida has federally protected water entitlement rights, and that LORS, or other water control structures and pumps, may provide water to the Big Cypress and Brighton Seminole Indian Reservations. Alternative B is anticipated to have no effect on the Water Rights Compact (25 USC Section 1722e) as HAB operations would have a net zero effect on lake stage. Triggers are in place within the operational strategy to anticipate water supply risks. If dryer than normal conditions, drought, or La Nina conditions are forecasted, advanced releases would not be implemented to minimize the risk to water supply. Advanced releases would also be cut back if water levels fell within 0.25 feet, NGVD of the WSM band. Reference *Regional Water Management* in the above table for effects on water supply.

Resource	Alternative A (No Action Alternative)	Alternative B (HAB Operational Strategy)
		Reference **Section 6.3** for coordination with the Seminole Tribe of Florida and Miccosukee Indian Tribe of Florida during development of this EA.

4.1 Cumulative Effects

Cumulative effects are defined in 40 CFR 1508.7 as those effects that result from: the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. The primary goal of cumulative effects analysis is to determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative effects of other past, present, and future actions. **Table 4-2** summarizes past, present and projected Corps efforts that are not interdependent but expected to affect the regional environment of south Florida. The planned deviation may be extended until LORS 2008 is replaced by a new water control plan (LOSOM) anticipated in 2022. The purpose of the LOSOM effort is to reevaluate and define operations for the Lake Okeechobee regulation schedule that take into account additional infrastructure that will soon be operational. The additional infrastructure that will be taken into consideration includes the HHD rehabilitation, Kissimmee River Restoration Project, as well as the Comprehensive Everglades Restoration Plan (CERP) C-43 West Basin Storage Reservoir and C-44 Reservoir and STAs.

The proposed action is expected to reduce ecologic and economic losses that could result from HABs. The general environmental effect of the proposed action would be beneficial with the goal of reducing the risk to public health and safety associated with HABS. The proposed action will enhance the ability of the Corps to respond to HABs within its authority and reduce the potential risk to human health and safety. Only under extreme drought events, would lake stage water bank debits not be made up through holding back releases that otherwise would have been required under LORS 2008. In this scenario, the limit of such effect would be a lower lake stage of about 0.28 feet, NGVD because preemptive releases would have been limited due to meteorological predictions of drought. The proposed action is not expected to cause the STAs to exceed design capacity. Once the Corps determines that releases should be made south from the lake, the quantity and exact timing of those releases are determined by the SFWMD. They determine what maximum practicable flows are for that operation which includes the conveyance capacity of the EAA canals as well as the storage and treatment capacity of the STAs. If it is determined that no releases south can be made due to treatment capacity, then flows will not be made.

Table 4-2. Past, present and reasonably foreseeable actions and plans affecting the action area.

-	Past Actions and Authorized Plans	Current Actions and Operating Plans	Reasonably Foreseeable Future Actions and Plans
Status of Non-CERP Projects	- C&SF Project (1948) - ENP Protection and Expansion Act (1989) - Modified Water Deliveries (MWD) General Design Memorandum and Final EIS (1992) - C-111 South Dade General Re-	- MWD 8.5 SMA GRR (2000) - MWD Tamiami Trail Modifications Limited Reevaluation Report (2008) - C&SF C-51 West End Flood Control Project - Kissimmee River Restoration - Seepage Barrier near the L-31 N Levee (Miami-Dade Limestone Products Association)	- SFWMD Restoration Strategies Project

	Evaluation Report (1994)	- Tamiami Trail Modifications Next Steps (TTMNS) Project - SFWMD Florida Bay Initiatives - C-111 South Dade Project (Contracts 8, 8A, and 9)	
Operations Plan for Lake Okeechobee, WCA 3A, ENP and the SDCS	- Water Supply and Environment (WSE) Lake Okeechobee Regulation Schedule (2000)	- Lake Okeechobee Regulation Schedule (LORS 2008) - SFWMD Lower East Coast Regional Water Supply Plan - Everglades Restoration Transition Plan (ERTP) October 2012 to present; deviation includes Increment 1 and Increment 1.1 and 1.2 and 2.0 Operational Strategies - Herbert Hoover Dike (HHD) Dam Safety Modification Study (HHD Dam Safety Modification Study) risk reduction measures (2011 through 2025)	- LORS 2008 to be replaced by revised Lake Okeechobee Regulation Schedule by 2022 - SFWMD periodically revises the LEC Regional Water Supply Interim Plan - ERTP to be replaced by Combined Operational Plan (COP) to be anticipated 2020 to include MWD and C-111 components.
CERP Projects		Congressional Authorization Received: - Broward County Water Preserve Areas Project - Caloosahatchee River (C-43) West Basin Storage Reservoir - Central Everglades Planning Projects Congressional Authorization Received and Construction in Progress: - Indian River Lagoon-South Project - Picayune Strand Restoration Project - Site 1 Impoundment Project	- Future CERP Projects (Lake Okeechobee Watershed Restoration Project, Loxahatchee River Watershed Restoration Project, Western Everglades Restoration Project - DOI removal of portions of the Old Tamiami Trail roadway and SFWMD construction of the increased S-333 structure - SFWMD Section 203 EAA Southern Reservoir Project

		- Biscayne Bay Coastal Wetlands Project - C-111 Spreader Canal Western Project (operated by SFWMD)	

4.2 Irreversible and Irretrievable Commitment of Resources

An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. An irretrievable commitment of resources is one in which, due to decisions to manage the resource for another purpose, opportunities to use or enjoy the resource as they presently exist are lost for a period of time. The proposed action consists of a temporary operational change to current water management operations and does not include construction of permanent structures or modifications to existing water management features. The proposed action would not cause the permanent removal or consumption of any natural resources.

4.3 Unavoidable and Adverse Environmental Effects

Environmental effects for each resource are discussed above in **Table 4-1**. The proposed action is not anticipated to result in unavoidable and significant adverse environmental effects. The Corps Water Management Section's assessment of hydrometerological conditions and stakeholder or agency input may suspend or discontinue the planned deviation due to impacts greater than expected/discussed within this EA. The Corps will determine the need for supplemental NEPA once the public comment period has expired.

4.4 Conflicts and Controversy

Over the lifetime of the C&SF Project, considerable interest has been generated among local and regional stakeholders. The Corps continually strives to include all interested parties in its decision making process and will continue to consider all issues that arise. Reference **Section 6** for a description of coordination with Federal and state agencies, and tribal representatives regarding the proposed action. Areas of potential concern include: (1) the influence of HAB operations on the release of nutrients into the Northern Estuaries and association with red tide events; (2) the influence of HAB operations on lake stage, and ability to minimize low lake stages and high recession rates that affect threatened and endangered species conservation efforts; (3) the influence of HAB operations on water supply; (4) the influence of HAB operations on stages in the WCAs; and (5) the influence of HAB operations on water quality treatment performance of STAs and ability to meet state water quality standards in the sensitive Everglades Protection Area (WCAs and ENP).

4.5 Environmental Commitments

The Corps commits to avoiding, minimizing or mitigating for adverse effects. All practicable means to avoid or minimize environmental effects were incorporated into the Preferred Alternative (Alternative B). The decision-making process for Lake Okeechobee water management operations considers all Congressionally-authorized project purposes. The decision-making process to determine quantity, timing, and duration of the potential release from Lake Okeechobee includes consideration of, but not limited to: C&SF Project conditions, historical lake levels, estuary conditions/needs, lake ecology conditions/needs,

WCA water levels, STA available capacity, current climate conditions, climate forecasts, hydrologic outlooks, projected lake level rise/recession, and water supply conditions/needs. Reference **Appendix A**.

When initializing HAB operations, the Corps will engage with federal and state agencies to develop a plan on timing and quantity of advance releases to be made under these operations, as the expertise and authority in water quality and potential for presence of HABs, lies outside the Corps. This plan should be re-evaluated for each instance of these operations. The Corps is committed to continuing meeting with stakeholders to gather information on current conditions and observations. Periodically (currently select Tuesdays), a group of water managers, scientists and engineers from the Corps, the sponsor (SFWMD), and other federal, state and local agencies meet via telephone conference to discuss conditions of the C&SF system as well as concerns related to fish and wildlife, water quality, and water supply. The Corps is committed to using this forum prior to consideration of any deviation related releases. Information gathered at this forum can help inform when HAB operations may be warranted. The call also allows for members of the public to listen and then provide comment during a public comment period. Reports on the ecological and hydrological status of different physiographic areas, such as estuaries and the Everglades, are presented. Meeting input is documented and available upon request to the Corps.

Under the proposed action, the Corps would continue consulting with the agencies weekly to determine the status of the individual ecosystems in the study area. When initializing HAB operations, the Corps will engage with federal and state agencies to develop a plan on timing and quantity of advance releases to be made under these operations, as the expertise in water quality and the potential for presence of HABs lies outside the Corps' authority. Determinations will be made based on best science available on HAB occurrence or likelihood of occurrence in coordination with agency experts at the SFWMD, U.S. Geological Survey (USGS), FDEP, NOAA, DOH, and the U.S. Environmental Protection Agency (USEPA). Much attention from the group centers on the spring season (March-June), which is critical for all ecosystems in the area. For Lake Okeechobee, allowing spring recessions with limited reversals is critical to plants and animals, including nesting and foraging habitat for the endangered snail kite. Additionally, many estuarine dependent species reproduce in the spring. This is a critical period for maintaining certain flow ranges for proper salinity regimes in the estuaries. It is not intended that releases should cause high or unnatural recession rates and if this occurs releases will be considered for adjustment. The public will be notified of these releases by the Corps normal water management notification process (press release, internet webpage).

5 LIST OF PREPARERS

Table 5-1 provides a list of the persons involved in the preparation and review of this document.

Table 5-1. List of report preparers and reviewers.

Name	Organization	Discipline/Expertise	Role in Document Preparation
Luis Alejandro	USACE	Water Manager	Reviewer
Chris Altes	USACE	Archeologist	Cultural Resource Analyses
Laureen Borochaner	USACE	Engineer	Reviewer
Dan Crawford	USACE	Hydrologist	Reviewer
Angela Dunn	USACE	Biologist	Reviewer
Jason Engle	USACE	Hydrologist	Reviewer
Savanah Lacy	USACE	Water Manager	Hydrologic Analyses/Operations
Andrew LoSchiavo	USACE	Biologist	Reviewer
Meredith Moreno	USACE	Archeologist	Reviewer
Melissa Nasuti	USACE	Biologist	Environmental Effects Analyses
Jim Riley	USACE	Environmental Engineer	Water Quality Analyses
Eric Summa	USACE	Biologist	Reviewer

6 PUBLIC INVOLVEMENT

The following details public involvement during development of the planned deviation.

6.1 Scoping and EA

A NEPA scoping letter was not mailed to interested stakeholders during the development of the planned deviation. Reference **Section 6.2** below for a description of coordination with other Federal and state agencies, and tribal representatives regarding the proposed action. Each of the respective agencies and tribal representatives referenced in **Section 6.2** were contacted on July 10, 2019 regarding the proposed action. At that time, the Corps had completed an EA and Proposed FONSI in accordance with 33 C.F.R. 230.1 to 230.26, with the intent of transmitting the deviation request to the Corps' South Atlantic Division (SAD) for approval. If SAD were to approve the deviation the Jacksonville District had planned to sign the FONSI prior to posting the NEPA document for public notification and a comment period. After further consideration of the comments received in response to this initial coordination, the Jacksonville District did not proceed with signature of the FONSI and is proceeding with a comment period on the proposed FONSI prior to signature of the FONSI. Comments summarized in **Section 6.2** are in response to the July 10, 2019 correspondence.

6.2 Agency Coordination

The Corps has been in coordination with other Federal and state agencies, and tribal representatives regarding the proposed action. Parties include the Seminole Tribe of Florida, Miccosukee Indian Tribe of Florida, Department of the Interior (DOI), Everglades National Park (ENP), FDEP, Florida Department of Agriculture and Consumer Services (FDACS), FWC, NMFS, SFWMD, USEPA, and USFWS. Each of these respective agencies and tribal representatives were contacted on 10 July 2019, regarding the proposed action. All agency coordination letters related to the proposed action are included in **Appendix B**.

6.2.1 Native American Tribes

The Corps contacted representatives of the Seminole Tribe of Florida and Miccosukee Indian Tribe of Florida on July 10, 2019 for the purpose of notification of the proposed action. The Seminole Tribe acknowledged receipt of the provided correspondence. Representatives from the Seminole Tribe requested a copy of EA to review once it became available. The Tribal Historic Preservation Office (THPO) requested clarification on potential effects to water deliveries in the WCAs. On July 15, 2019, the THPO provided concurrence on a no effect determination to historic properties given the condition that existing restrictions on the maximum water levels in the WCAs will not be exceeded.

6.2.2 Department of the Interior

The Corps contacted the DOI for the purpose of notification and discussion of NEPA via correspondence dated July 10, 2019. A teleconference was held in response with representatives of DOI's Center for Everglades Restoration Initiatives. During the meeting the following items were discussed: (1) clarification of requirements for initiation of HAB operations; (2) the duration of HAB operations; and (3) the influence of HAB operations on lake stage and the potential for a lack of water to the WCAs and ENP during the dry season. The Corps provided clarification in response to the above discussion.

6.2.3 Florida Department of Environmental Protection

The Corps contacted the FDEP on July 10, 2019 for the purpose of notification of the proposed action. FDEP responded on July 18, 2019. FDEP noted that the proposed deviation is not exempt from the CZMA process and comments provided were not intended to represent FDEP's CZMA review. Comments included: (1) the EA/FONSI should explain whether any new modeling runs were performed in support of the development of the proposed action; (2) the EA/FONSI should characterize whether the proposed action would have any impact, even, temporarily, on the minimum flows and levels (MFLs) for Lake Okeechobee, St. Lucie Estuary, Caloosahatchee Estuary, and Florida Bay; (3) clarification was sought on HAB operations and triggers that would cause the initiation or stoppage of HAB operations; (4) and a request was made to hold periodic scientists calls on a weekly basis to discuss the proposed action when implemented. The state may weigh in on MFLs and CZMA considerations during these calls.

6.2.4 Florida Department of Agriculture and Consumer Services

The Corps contacted the FDACS on July 10, 2019 for the purpose of notification of the proposed action. A follow up call was held on July 11, 2019 in which the following items were discussed: (1) ability to reach a net zero balance such that the total volume released across the entire year is unchanged from the releases that would have taken place under the existing schedule; (2) inclusion of additional criteria to minimize risk to water supply and flood control; (3) clarification of requirements for initiation of HAB operations; (4) level of detail provided in operational strategy. Formal comments were provided via correspondence July 15, 2019. Comments included: (1) concern that the proposed action is being undertaken without stakeholder participation; (2) concern that the proposed action is a major change in operations with potential risks to human health and safety including the natural environment; and (3) feasibility of water banking. FDACS committed to engage with the Corps on the proposed action, requesting additional time prior to moving forward with the planned deviation.

6.2.5 Florida Fish and Wildlife Conservation Commission

The Corps contacted the FWC on July 10, 2019 for the purpose of notification of the proposed action. A follow up call was held on July 11, 2019 and July 16, 2019. Formal comments were provided via correspondence July 16, 2019. Comments included: (1) the need for clarification on HAB operations and conditions for initiation; (2) recognition of the continued need for coordination with agency scientists, managers and stakeholders during implementation of the proposed action; and (3) and the influence of HAB operations on the timing of releases to include caution to not disrupt the natural hydrologic cycle or cause reversals that may affect environmental resources.

6.2.6 National Marine Fisheries Service

The Corps contacted the NMFS on July 1, 2019 for the purpose of notification and discussion of ESA consultation via teleconference. A follow up call was held on July 8, 2019 and July 16, 2019. During the meetings clarification was provided on the intent of the proposed action to include the duration of HAB operations. The influence of releases on salinity in the Northern Estuaries and potential effects on turbidity were also discussed in addition to Essential Fish Habitat. An informal consultation request was subsequently provided to NMFS on July 10, 2019 for federally listed threatened and endangered species under their purview. The Corps' made a no effect determination for the proposed action. Reference **Appendix B**. NMFS responded on July 15, 2019, noting that the Corps is not required to seek concurrence

on “no effect” determinations and it is NMFS policy to not provide concurrence on another agency’s “no effect” determination.

6.2.7 South Florida Water Management District

The Corps contacted the SFWMD on July 10, 2019 for the purpose of notification of the proposed action. The Corps held a teleconference with SFWMD to discuss the proposed planned deviation. During the meeting the following items were discussed: (1) clarification of water management considerations that will be taken into account when considering releases under the deviation; (2) clarification of considerations that will be taken into account when evaluating cutting back or ceasing releases in response to HAB; (3) clarification of the process by which the deviation operations will be tracked with respect to total volume of releases and subsequent lake stage changes and (4) clarification that all project purposes will be considered in the decision-making process when enacting the deviation operations.

6.2.8 U.S. Environmental Protection Agency

The Corps contacted USEPA Region 4 for the purpose of notification and discussion of NEPA via correspondence dated July 10, 2019. USEPA acknowledged receipt of the Corps notification indicating an appreciation of the early coordination and USEPA inquired about the need to approve the planned deviation prior to public notification. The Corps provided clarification in response, noting the need to complete NEPA in order to have additional operational flexibility to address HABs prior to an extreme rainfall event. Additional questions on the proposed action were provided to the Corps on July 12, 2019 relating to project authority as well as the need for additional clarification on releases to the WCAs.

6.2.9 U.S. Fish and Wildlife Service

The Corps contacted USFWS on July 1, 2019 for the purpose of notification and discussion of ESA consultation via teleconference. Follow up calls were held on July 8, 2019 and July 15, 2019. During the meetings clarification was provided on the intent of the proposed action to include the duration of HAB operations. The influence of releases on lake stage and recession rates as it relates to potential effects to the Everglade snail kite were also discussed. An informal consultation request was subsequently provided to USFWS on July 10, 2019 for federally listed threatened and endangered species under their purview. The Corps’ made a no effect determination for the proposed action. Reference **Appendix B**. USFWS responded via teleconference, noting that the Corps is not required to seek concurrence on “no effect” determinations.

6.2.10 Additional Correspondence

In addition, to the correspondence summarized above, a letter from Center for Biological Diversity was received on December 19, 2018 providing information on blue green algae HABs and human health risk with regards to LORS 2008. References relating to blue green algae HABs cited within the December 19, 2018 correspondence has been incorporated in **Section 8.**

Comments were received from the Lake Worth Drainage District on July 19, 2019 and the Florida Farm Bureau Federation on July 22, 2019 regarding the proposed action. Comments from the Florida Farm Bureau Federation and Lake Worth Drainage District included the concern that the proposed action is being undertaken without stakeholder participation and clarification on the influence of HAB operations on lake stage, environmental resources, water supply, and flood protection.

6.3 List of Recipients

A Notice of Availability (NOA) for the Draft EA and Proposed FONSI was mailed to interested stakeholders to begin the comment period. Recipients include Federal, State, and local agencies, affected Indian Tribes, and other interested private organizations and individuals as listed below. A complete mailing list is available upon request. Copies of the EA and Proposed FONSI were also posted on the internet at the following address:

http://www.saj.usace.army.mil/About/DivisionsOffices/Planning/EnvironmentalBranch/EnvironmentalDocuments.aspx#

7 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

The following documents compliance of the proposed action with environmental requirements.

7.1.1 National Environmental Policy Act of 1969

Environmental information has been compiled and this EA has been prepared and coordinated for public, state, and Federal agency review. The Proposed Action is in compliance with the National Environmental Policy Act.

7.1.2 Endangered Species Act of 1973

Correspondence dated July 10, 2019 was provided to USFWS and the NMFS requesting concurrence on species determinations as a result of the proposed action. Reference **Section 6.2** and **Appendix B** for pertinent correspondence. The Corps' made a no effect determination for the proposed action, for those species that fall under the purview of USFWS and NMFS within the project area. Both the USFWS and NMFS responded, noting that the Corps is not required to seek concurrence on "no effect" determinations. The Corps agrees to maintain open and cooperative communication with USFWS and NFMS during the planned deviation. The proposed action has been fully coordinated under the Endangered Species Act and will be in full compliance with the Act.

7.1.3 Fish and Wildlife Coordination Act of 1958, as amended

The proposed action has been fully coordinated with USFWS and FWC. In response to the requirements of this Act, the Corps has and will continue to maintain continuous coordination with USFWS and FWC. The proposed action is in full compliance with the Act.

7.1.4 National Historic Preservation Act of 1966

The proposed action is in compliance with Section 106 of the National Historic Preservation Act, as amended (PL 89-665). The Corps has determined the proposed deviation has no potential to effect historic properties. The proposed action is in compliance with the Archaeological and Historic Preservation Act, as amended (PL 93-29), Archeological Resources Protection Act (PL96-95), American Indian Religious Freedom Act (PL 95-341), Native American Graves Protection and Repatriation Act (NAGPRA) (PL 101-601), Executive Order 11593, 13007, and 13175, the Presidential Memo of 1994 on Government to Government Relations and appropriate Florida Statutes.

7.1.5 Clean Water Act of 1972

The proposed action will not adversely affect water quality and will be in compliance with the Clean Water Act. As the proposed action is strictly of an operational nature, and does not involve any new discharge or construction activity, water quality certification from the State of Florida is not required. Furthermore, as there are no structural components contained in the proposed action and no dredge and fill operations being considered, a Section 404(b) Evaluation is not appropriate. The proposed action is in compliance with this Act.

7.1.6 Clean Air Act of 1972

No air quality permits will be acquired for the proposed action as the proposed action does not require such permits. Section 176(c) is not applicable because the proposed action in within attainment areas for all criteria pollutants.

7.1.7 Coastal Zone Management Act of 1972

The Corps has determined that the proposed action is consistent to the maximum extent practicable with the enforceable policies of Florida's approved Coastal Zone Management Program.

7.1.8 Farmland Protection Policy Act of 1981

No prime or unique farmland would be impacted by implementation of the proposed action. This Act is not applicable.

7.1.9 Wild and Scenic River Act of 1968

The Northwest Fork of the Loxahatchee River is designated a Wild and Scenic River. This resource is not expected to be adversely impacted by the proposed action. The proposed action is in full compliance with this Act.

7.1.10 Marine Mammal Protection Act of 1972

No marine mammals would be harmed, harassed, injured or killed as a result of the proposed action. Therefore, the proposed action is in compliance with this Act.

7.1.11 Estuary Protection Act of 1968

The Indian River Lagoon and Charlotte Harbor are part of the National Estuary Program established by Section 320 of the Clean Water Act. The proposed action would not adversely affect these estuaries. The proposed action is in compliance with this Act.

7.1.12 Federal Water Project Recreation Act of 1965, as amended

Recreation and fish and wildlife enhancement have been given full consideration in the proposed action.

7.1.13 Fishery Conservation and Management Act of 1976

The proposed action has been coordinated with the NMFS and is in compliance with the Act.

7.1.14 Submerged Lands Act of 1953

The action would occur on submerged lands of the State of Florida. Significant effects to fish and wildlife resources and vegetative communities within submerged lands of the State of Florida are not expected. The proposed action has been coordinated with the State and is in compliance with the Act.

7.1.15 Coastal Barrier Resources Act and Coastal Barrier Improvement Act of 1990

There are no designated coastal barrier resources in the project area that would be affected by the proposed action. These Acts are not applicable.

7.1.16 Resource Conservation and Recovery Act (RCRA), As Amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984, Comprehensive Environmental Response Compensation and Liability Act (CERCLA), Toxic Substances Control Act (TSCA) of 1976

Implementation of the proposed action is not expected to result in the discovery of HTRW since there is no excavation or other construction activities associated with the proposed action. The proposed action has a very low risk for increased mobilization of existing HTRW where it might exist within the study area. The proposed action is in compliance with these Acts.

7.1.17 Rivers and Harbors Act of 1899

The proposed action would not obstruct navigable waters of the United States. The proposed action is in full compliance.

7.1.18 Safe Drinking Water Act of 1974, As Amended

The proposed action would not impact safe drinking water standards. The proposed action is in full compliance.

7.1.19 Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646)

Acquisition of real estate is not required for the proposed action. The proposed action is in compliance with this Act.

7.1.20 Anadromous Fish Conservation Act

Anadromous fish species will not be affected. The proposed action has been coordinated with the NMFS and is in compliance with the Act.

7.1.21 Migratory Bird Treaty Act and Migratory Bird Conservation Act

Migratory and resident bird species have been observed within the project area and are likely to use available habitat for foraging, nesting, and breeding. The proposed action is not expected to destroy migratory birds, their active nests, their eggs, or their hatchlings. The proposed action will not pursue, hunt, take, capture, kill or sell migratory birds. The proposed action is in compliance with these Acts.

7.1.22 Marine Protection, Research and Sanctuaries Act

The Marine Protection, Research and Sanctuaries Act does not apply to the proposed action. Ocean disposal of dredge material is not proposed as part of the proposed action.

7.1.23 Magnuson-Stevens Fishery Conservation and Management Act

The proposed action has been coordinated with the NMFS and is in compliance with the Act. An evaluation of EFH has been included in **Environmental** Effects **4.**

7.1.24 E.O. 11990, Protection of Wetlands

This E.O. instructs Federal agencies to avoid development in floodplains to the maximum extent possible. The proposed action is an operational change to existing infrastructure; therefore, no construction is proposed. This action is consistent with the intent of this E.O. and is in compliance.

7.1.25 E.O. 11988, Floodplain Management

This E.O. instructs Federal agencies to avoid development in floodplains to the maximum extent possible. The proposed action is an operational change to existing infrastructure; therefore, no construction is proposed. The proposed action is consistent with the intent of this E.O. and is in compliance.

7.1.26 E.O. 12898, Environmental Justice

E.O. 12989 provides that each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority or low income populations. The proposed action would not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. The proposed action is in compliance with this E.O.

7.1.27 E.O. 13089, Coral Reef Protection

The proposed action will not result in adverse impacts to coral reef ecosystems. No coral reef habitats exist within or near the project area. This Act is not applicable.

7.1.28 E.O. 13112, Invasive Species

The proposed action would have no significant impact on invasive species. The proposed action is in compliance with the goals of this E.O.

7.1.29 E.O. 13045, Protection of Children

E.O. 13045, requires each Federal agency to “identify and assess environmental risk and safety risks [that] may disproportionately affect children” and ensure that its “policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.” This action has no environmental safety risks that may disproportionately affect children. The proposed action is in compliance.

7.1.30 E.O. 13186, Responsibilities of Federal Agencies to Protect Migratory Birds

Migratory and resident bird species have been observed within the project area and are likely to use available habitat for foraging, nesting, and breeding. The proposed action is not expected to destroy

migratory birds, their active nests, their eggs, or their hatchlings. The proposed action is in compliance with the goals of this E.O.

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APPENDIX A OPERATIONAL STRATEGY

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Harmful Algae Bloom Operational Strategy

1. Executive Summary

Alter the timing and volume of Lake Okeechobee releases to the Water Conservation Areas (WCAs), east, and/or west to allow for greater flexibility with water management decisions when harmful algae blooms (HABs) are present or forecasted in Lake Okeechobee, the St Lucie or Caloosahatchee estuaries, or the system of canals that connects them.

2. Definitions

Harmful Algal Bloom (HAB) - freshwater blue/green algae bloom causing adverse environmental, economic, or health effects

3. What

Planned deviation to the Water Control Plan for Lake Okeechobee and Everglades Agricultural Area (also known as Lake Okeechobee Regulation Schedule [LORS] 2008). Main changes to the LORS 2008 to include operations for HABs can be summarized as follows:

Allow the flexibility to make larger releases east and west than LORS Part D calls for and make releases south when LORS Part C does not recommend releases within the Beneficial Use Sub-Band, Base Flow Sub-Band, Low Sub-Band and the Intermediate Sub-Band.

- Releases east and west would be limited up to 2,000 cfs measured at S-79 and up to 730 cfs measured at S-80, and would only be applicable when LORS Part D recommends up to 450 cfs measured at S-79 and up to 200 cfs as measured at S-80 or when Part D does not specifically recommend releases (Beneficial Use Sub-band).
- Allow the flexibility to make up to maximum practicable releases south to the WCAs when LORS Part C does not recommend release within the Low, Baseflow, and Beneficial Use Sub-bands. Maximum practicable takes into account storage within the WCAs as well as conveyance capacity within the Everglades Agricultural Area and storage and treatment capacity within the Stormwater Treatment Areas.
- These larger releases will allow for greater flexibility to potentially reduce releases from Lake Okeechobee during periods when HAB are present in Lake Okeechobee or the St. Lucie or Caloosahatchee Estuary. The objective will be to reach a net zero balance such that the total volume released between 1 February and 31 January each year is unchanged from the releases that would have taken place under the existing schedule.

These operations would only be utilized if conditions were met for HAB operations (see Section 6-a). The decision making-making process for releases out of Lake Okeechobee will remain unchanged from LORS 2008 and is included below for consistency.

The decision making process for Lake Okeechobee water management operations considers all Congressionally-authorized project purposes. The decision-making process to determine quantity, timing, and duration of the potential release from Lake Okeechobee includes consideration of, but not limited to: Central and Southern Florida (C&SF) Project conditions, historical lake levels, estuary conditions/needs, lake ecology conditions/needs, WCA water levels, Stormwater Treatment Area (STA)

available capacity, current climate conditions, climate forecasts, hydrologic outlooks, projected lake level rise/recession, and water supply conditions/needs.

4. Why

The blue green algae crisis has caused substantial and widespread impacts to Florida communities over the last several years resulting in state declared emergencies in multiple counties (Glades, Hendry, Lee, Martin, Okeechobee, Palm Beach, and St. Lucie counties)[1]. The State of Florida has formed two emergency task forces to address algal blooms and invested significant resources to develop and implement solutions to the algae crisis. The Corps operates in order to minimize the health effects associated with HABs to the extent practicable. This deviation will enhance the ability of the Corps to respond to HABs within its authority.

5. When

The planned deviation would be implemented as soon as possible, but action may not be taken immediately and would depend upon the conditions set forth in this operational strategy. This deviation will be in effect for a minimum duration of one year. The Corps Water Management Section's assessment of hydrometerological conditions and stakeholder or agency input may suspend or discontinue the planned deviation due to impacts greater than expected/discussed *within the associated EA that supports the deviation*. This deviation may be terminated at any time. Reevaluation of and possible extension of the planned deviation will occur after year one of implementation via memorandum to the South Atlantic Division Commander. Water bank summary information as well as any unexpected effects or challenges encountered during implementation will be evaluated in the memorandum. The planned deviation may be extended until LORS 2008 is replaced by a new water control plan (to be called the Lake Okeechobee System Operation Manual [LOSOM]) anticipated in 2022.

6. How

<u>6-a. Any one of these conditions could warrant the use HAB operations to be utilized:</u>

1. If a HAB is currently in Lake Okeechobee, C-43, C-44, the Caloosahatchee Estuary, or the St. Lucie Estuary.
2. If the state of Florida declares a state of emergency due to HABs on Lake Okeechobee, C-43, C-44, the Caloosahatchee Estuary, or the St. Lucie Estuary.
3. If a HAB is anticipated to occur on Lake Okeechobee, C-43, C-44, the Caloosahatchee Estuary, or the St. Lucie Estuary.
4. If a HAB has occurred and caused harm, or have impacted public safety during the last 12 months within Lake Okeechobee, C-43, C-44, the Caloosahatchee Estuary, or the St. Lucie Estuary.

The Corps will consult with partners on the latest science and tools predicting potential and/or indicating actual HAB presence on the Lake and Estuaries. Current tools available include National Oceanic and Atmospheric Administration’s (NOAA) remote sensing assessment of HAB potential on the lake and estuaries as well as monitoring of HAB occurrence by the South Florida Water Management District (SFWMD) and Florida Department of Environmental Protection (FDEP).

6-b. Operations under these circumstances could include:

- If any of the conditions above are met, the following represents the intent of the operational strategy:
    - Manage water to reduce the risk of transporting a HAB from Lake Okeechobee to the estuaries
    - Manage water to reduce risk of exacerbating a HAB in the estuaries
    - Manage water in anticipation of HAB conditions by making long term low volume releases before a HAB event and not during (subject to considerations identified in Section 6-c)

When initializing HAB operations, the Corps will engage with federal and state agencies to develop a unique plan on timing and quantity of advance releases to be made under these operations, as the expertise and authority in water quality lies outside the Corps. This plan should be re-evaluated for each instance of these operations. The Corps is committed to continuing meeting with stakeholders to gather information on current conditions and observations. Periodically (currently select Tuesdays), a group of water managers, scientists and engineers from the Corps, the sponsor (SFWMD), and other federal, state and local agencies meet via telephone conference to discuss conditions of the C&SF system as well as concerns related to fish and wildlife, water quality, and water supply. Information gathered at this forum can help inform when HAB operations may be warranted. The call also allows for members of the public to listen and then provide comment during a public comment period. Reports on the ecological and hydrological status of different physiographic areas, such as estuaries and the Everglades, are presented. Meeting input is documented and available upon request to the Corps. Under the proposed action, the Corps would continue consulting with the agencies weekly to determine the status of the individual ecosystems in the study area. Determinations will be made based on best science available on HAB occurrence or likelihood of occurrence in coordination with agency experts at the SFWMD, U.S. Geological Survey (USGS), FDEP, NOAA, Florida Department of Health (FDOH), and the U.S. Environmental Protection Agency (EPA).

The duration of HAB operations is not prescribed, but should be based on the conditions or forecasted conditions that led to the implementation. The risk to human health and safety due to HABs will be evaluated at the time based on the best available science in close coordination with federal and state agencies which have the technical knowledge and authority to help develop a plan for the timing and quantity of releases (within the impacts expected/discussed *within the associated EA that supports* this deviation). It is acknowledged that the science in this field is rapidly developing therefore specific durations and timings of these operations for each potential instance cannot be defined for the operational strategy at this time.

Releases as part of HAB operations could be done between the Intermediate sub-band and the Water Shortage Management Band (WSM) (see Figure 1).

6-c. Conditions under which HAB operations would not be implemented

This planned deviation does not guarantee that releases will not be made during bloom conditions, but provides the Corps with some operational flexibility to potentially hold back water during HAB conditions. The decision to postpone releases during a HAB will be unique each time. The

Corps must weigh the risks of holding back releases and against risks associated with HABs. Dam safety risk, which is determined by the Corps' Dam Safety Officer (DSO), can be informed by tropical activity/forecasts, precipitation forecasts, lake level, projected lake level and many other factors. This planned deviation does not guarantee that releases will be ceased during bloom conditions.

Ecological conditions within Lake Okeechobee, the estuaries, or the WCAs would also be evaluated and if recommendations by other agencies were made against releases for risk of causing ecological harm then releases may not be made. Lake Okeechobee is critical habitat for the endangered Everglades Snail kite and water level changes can impact this species. Receding water levels at a rate higher than 0.5 ft/month in addition to other conditions are identified within the LORS 2008 Biological Opinion and the associated Environmental Impact Statement (EIS). Recession rates will be evaluated weekly: 30 day recession calculated daily and then the 7 day average of those values evaluated weekly, if that 7 day average of the 30 day recession rates is above 0.5 feet, then any HAB releases will be ceased. It is not intended that releases should cause high or unnatural recession rates and if this occurs releases will be adjusted. Releases would not be made if stages were declining (7 day average declining consistently for multiple weeks) and below 12 feet to try to avoid impacting Everglades Snail Kite, other nesting birds on Lake Okeechobee, and the overall lake ecology. This is illustrated by the hatched area labeled "Below 12 feet Zone" on Figure 1.

Ecological conditions within the WCAs would also be evaluated, as per normal operations under LORS 2008. If water levels or rates of rise within the WCAs caused by these HAB operations were forecasted to cause harm then releases south to the WCAs may not be made.

Water supply conditions would also be evaluated throughout HAB operations. HAB operations would not be implemented in the WSM band or if significant impacts to water supply (such as risk of falling into the WSM) were high. A buffer of 0.25' above the WSM band would also trigger releases to be reduced or possibly ceased to reduce the risk of falling into this band (see red dashed line in Figure 1). Advance releases would not be utilized if conditions such as drought or La Niña are forecasted, due to the risk to water supply.

6-d. Releases South from Lake Okeechobee

Consistent with LORS 2008, releases south would be evaluated before releases east/west, as outlined in Part C. If LORS Part C (see Figure 2) does not recommend release south, and HAB conditions are in effect (as defined in section 6-a), then releases south up to maximum practicable could be made in accordance with this operational strategy. Maximum practicable releases relates to: the capacity in the Miami River, North New River, and Hillsborough canals to deliver water south while still providing the authorized flood control; and the capacity in the state of Florida STAs to meet downstream water quality standards. The key difference between HAB operations and normal operations under LORS for releases south will be that the Tributary Hydrologic Conditions and the Multi-Seasonal Outlook would not be evaluated during HAB operations. Water levels and impacts to everglades ecosystems would still be evaluated as is currently done with in LORS Part C (Figure 2). Further elaboration is provided here.

Releases made south would be done for HAB operations only when in the Low, Baseflow, and Beneficial Use Sub-bands and only if conditions allow. Allowable conditions would include when all downstream WCAs are less than a quarter of a foot above the maximum of the upper Regulation Schedule zone of the downstream WCA(s). Downstream WCAs refer to the WCAs downstream of the WCA receiving Lake Okeechobee releases. For example, if it is desired to make a release to WCA-3A (via

STA-3/4), then WCA-1 and WCA-2A water levels do not constrain the release to WCA-3A since they are upstream of WCA-3A. However, if it is desired to make a release to WCA-2A (via STA-3/4), and if the WCA-3A water level was higher than a quarter of a foot above the maximum of its regulation schedule, then no release to WCA-2A would be made.

Environmental conditions within the WCAs would also be taken into account. If releases south would cause any of the WCAs to rise more rapidly than is ecologically preferable, then releases may not be sent south from the lake. Releases south would be determined based on weekly coordination with agency scientists (SFWMD and FDEP) and the WCA-3A Periodic Scientist Calls. Hydrologic, ecological, and water supply conditions within the WCAs would be taken into account before sending water south, consistent with how releases south from Lake Okeechobee are managed under LORS. No impacts to the WCAs are anticipated for HAB operations.

The public will be notified of any HAB releases by the USACE's normal water management notification process (press release, internet webpage).

6-e. Releases to Tide (East and West to Estuaries)

Releases could be made in advance of HAB events, which would be limited up to 2,000 cfs measured at S-79 and up to 730 cfs measured at S-80. These advanced releases would only be done when LORS guidance indicates up to 450 cfs measured at S-79 and 200 cfs measured at S-80 or is silent on releases (Beneficial Use Sub-band) because all other LORS flow recommendations are above the limits of advanced releases. For example if LORS recommended 3,000 cfs measured at S-79 and 1,170 cfs measured at S-80, then these releases would be done as normal operations and not limited to the advanced release limits (2,000/730 cfs). The advanced releases are equivalent to a loss of 0.01 ft/day due to the west (2,000 cfs) and 0.003 ft/day to the east (730 cfs) on Lake Okeechobee. This estimation is a conservative maximum estimate of the greatest one day effect to lake stage (multi-day effects can be calculated by multiplying by the number of days to be implemented). In reality a significant portion of the flows come from local basin runoff, meaning that the effect on lake stage would be less. The red boxes in Figure 3 show the applicable boxes which could be subject to increased releases due to HAB operations. Not shown in Figure 3 is the Beneficial Use Sub-band, which would also be subject to increased releases due to HAB operations.

Releases could be postponed due to HABs (postponed meaning doing less than the up-to limits within Part D of LORS until after a HAB event) and would be "banked" as positive volumes to be tracked for a duration of 12 months (between 1 February and 31 January). The decision to postpone releases because of HAB decisions will be unique each time. The Corps will weigh the risk of holding back releases against risks associated with HABs. Flood risk is managed by the Corps DSO, and can be informed by tropical activity/forecasts, precipitation forecasts, lake level, projected lake level and many other factors. HAB operations do not guarantee that releases will not be made during HAB conditions. Under the current LORS 2008, a provision for make-up releases exists to account for releases held back in the operational band that can then be made up later. Due to unprecedented construction on Herbert Hoover Dike (HHD) to repair the vulnerable high hazard dam, the holding back of releases when LORS 2008 recommends them, is a decision which the DSO will closely evaluate based on the unique conditions at the time. Releases made in advance will give the DSO much more flexibility to consider holding back.

The Corps will consult with federal and state agencies with the authority and technical expertise to determine HAB risks as described above. Those agencies could include, but not limited to, FDEP, FDOH, EPA, NOAA, and USGS.

Releases within the Beneficial Use Sub-band would be cut back if lake levels fell within 0.25 feet of the WSM Band in order to reduce the risk of falling into this band (indicated by the red dashed line in Figure 1). In addition, when lake stages are below the ideal ecological low stage of 12 feet as defined in the 2005 Lake Okeechobee Conceptual Ecological Model releases would only be made if the lake was rising rapidly (greater than 0.15 feet per week on average). This action would be done to avoid risk of extreme low lake levels that can impact Lake Okeechobee ecology and threatened and endangered species. Attenuating the rate of rise on the lake can be ecologically beneficial to the lake ecology, including submerged aquatic vegetation and nesting birds and therefore have a positive impact.

All releases under this HAB operations could be implemented in a pulse pattern or steady flows and should be based on the best available science. If a pulse is implemented, the duration of the pulse does not have a limit. The Corps typically coordinates with estuarine scientist at the SFWMD and other agencies to help determine the best pulse duration and pattern for the desired average flows and are based on current salinity conditions as well as rainfall forecasts. Under HAB operations this practice would continue.

The public will be notified of any HAB releases by the USACE's normal water management notification process (press release, internet webpage).

6-f. Water Bank for HAB operations

Releases made above or under LORS guidance will be tracked for 12 months (between 1 February and 31 January). This time period was chosen to correspond with the beginning of the endangered everglades snail kite nesting period, for which Lake Okeechobee is considered a critical habitat. The volume of releases that are called for under LORS 2008 but are not made (releases made under the LORS Part D guidance as seen in Figure 3) will be banked as a "deposit" and have a positive volume. Releases made that exceed those called for under LORS Part D guidance will be banked as a "withdrawal" or "loan" and have a negative volume. Values will be summed for a total bank amount which can be either positive or negative. When the bank has a surplus (+) sum at any time then more releases could be made and when the bank has a deficit (-) at any time it means releases could be held back. The goal will always be to get to a zero balance by 1 February. Conditions which may impact the zero sum could be, but not limited to, a large rainfall or tropical event, drought, La Niña or El Niño, or environmental concerns. Tracking and banking these release is intended to maintain all project purposes of Lake Okeechobee to the same levels as the 2008 LORS. Actual releases made will be based on the targeted weekly averages at the associated structure (S-79 and S-80) so the time step will be based on the release decision (often weekly but could vary). By 1 February, if in the unlikely chance that a balance is still present in the water bank, the balance would be carried over to the following year in order to minimize impacts.

Releases south are made for multiple reasons to include water supply (for agricultural, municipal, and industrial uses as well as to prevent salt water intrusion along the east coast of Florida) as well as regulatory releases from Lake Okeechobee. Under LORS 2008 when Part C does not call for

lake releases to be sent south, the water for water supply may still be sent as required. Only lake water sent south to the STAs/WCAs as part of HAB operations would be tracked and banked. It is not anticipated that releases south will be held back during HAB operations, as there is minimal risks associated with sending water south when blooms are occurring. Releases made south when Part C does not call for them will be banked as negative volumes.

The water bank will be in one bank account for all HAB operations where releases made or held back would be all put into the same bank. Releases may be done east, west, or south depending on where releases could be beneficial or have minimal impacts. Needs may include, but not limited to, environmental releases to maintain salinities within the estuaries or to hydrate the WCAs during important nesting periods. The balance of the water bank will be reported periodically in the Lake Okeechobee Periodic Scientists Call and summarized after one year of this deviation being in place.

Table 1: HAB Operational Flexibility Accounting Example
(note the values in this table do not indicate maximums or minimums and are only used to illustrate a mathematic example of the banking to be done)

Week of	LORS Part D guidance (cfs)	Actual Releases made (cfs)	Delta Guidance/ LORS (cfs) (-) above LORS (+) below LORS	Duration (days)	Delta - Guidance/ LORS (ac-ft) (-) above LORS (+) below LORS
7-May	0	1,000	-1,000	21	-41,643
28-May	650	1,000	-350	21	-14,575
14-Jul	650	0	+650	7	+9,023
21-Jul	650	0	+650	7	+9,023
28-Jul	3,000	3,000	0	7	0
4-Aug	3,000	0	+3,000	7	+41,643
11-Aug	3,000	3,000	0	7	0
18-Aug	3,000	3,000	0	7	0
25-Aug	650	1,000	-350	7	-4,858
				Total (ac-ft)	-1,388

(+) surplus means make up releases still need to be made because there is still more water to get out

(-) deficit means do not do make up releases as more water was released than intended under LORS

7. Potential effects

This deviation is expected to be in place for multiple years and the impacts will be discussed in terms of several scenarios since exact conditions are unknown. If the operations are successful in their conception of this plan, net zero water bank balance would occur on 1 February. In this perfect scenario, there will be no expected effects to lake stage, and therefore no net effect project purposes. Since these operations will be effecting the timing of releases, temporarily there will be conditions which would lead to higher or lower releases and lake levels than those which would have been under LORS alone, but the overall volume of water released will not change and there will be no net effect on lake stage at the end of the deviation period. Risk of adverse environmental effects will be minimized through consideration of current and forecasted hydrologic and environmental conditions, and continued adherence to the HAB operational plan developed in close coordination with federal and state agencies. The goal of real time analysis and coordination is to avoid releases that can cause stages to go into the WSM and/or could impact threatened and endangered species foraging and nesting on Lake Okeechobee. Complete effects analysis is included in the body of this Environmental Assessment.

Some scenarios where conditions may not be conducive to reaching net zero releases have been developed below in an effort to illustrate an envelope of effects. These scenarios are not meant to be all-inclusive or limiting in any way, but meant to identify any potential effects that this deviation could have. All effort will be made to anticipate factors and avoid the below scenarios.

Scenario 1 (potential impacts to water supply and no risk to dam safety): Advanced releases are made towards the beginning of the wet season in anticipation of a HAB within the Baseflow Sub-band. In this case an assumption of a 30 day duration of advanced releases at 2,730 cfs is made (2,000 + 730 cfs – assuming all releases out of S-79 and S-80 came from Lake Okeechobee) which is 2,080 cfs over a Baseflow release of 650 cfs. Releasing 2,080 cfs for 30 days would affect lake stages by approximately 0.28 feet (123,740 ac-ft). Then conditions turn unexpectedly drier than normal bringing stages down into the Beneficial Use Sub-band. There would be no lake releases to make-up, due to lake stages in the Beneficial Use Sub-band – as LORS does not outline releases in this sub-band. The volume of advanced releases (equivalent to 0.28 feet on Lake Okeechobee) would have a nominal effect on water supply and starting stage for Everglade snail kite nesting the following dry season. This is considered the worst case scenario, but there is a low probability of this occurrence.

Scenario 2 (potential improvements to dam safety and minimal risk to water supply): Advanced releases are made towards the beginning of the wet season in anticipation of a HAB, and then a large rain event comes across the lake, bringing the lake up multiple feet into the High Lake Management Band. The most recent example of this was 2017 Hurricane Irma, which brought the lake up very quickly and took many months to release water back down to safe levels. In a scenario like this, releases may not be held back, to zero out the water bank account, due to dam safety risks. In this scenario, it is likely that most project purposes would benefit from releasing water out of Lake Okeechobee, most especially flood risk management/dam safety. In this case if the same flow and duration assumptions were made as in Scenario 1 (2,080 cfs for 30 days), the lake would crest 0.28 feet lower than without HAB operations, reducing the dam safety risk than if no HAB operations were implemented. There would be no risk project purposes (water supply, fish and wildlife enhancement, navigation, and recreation).

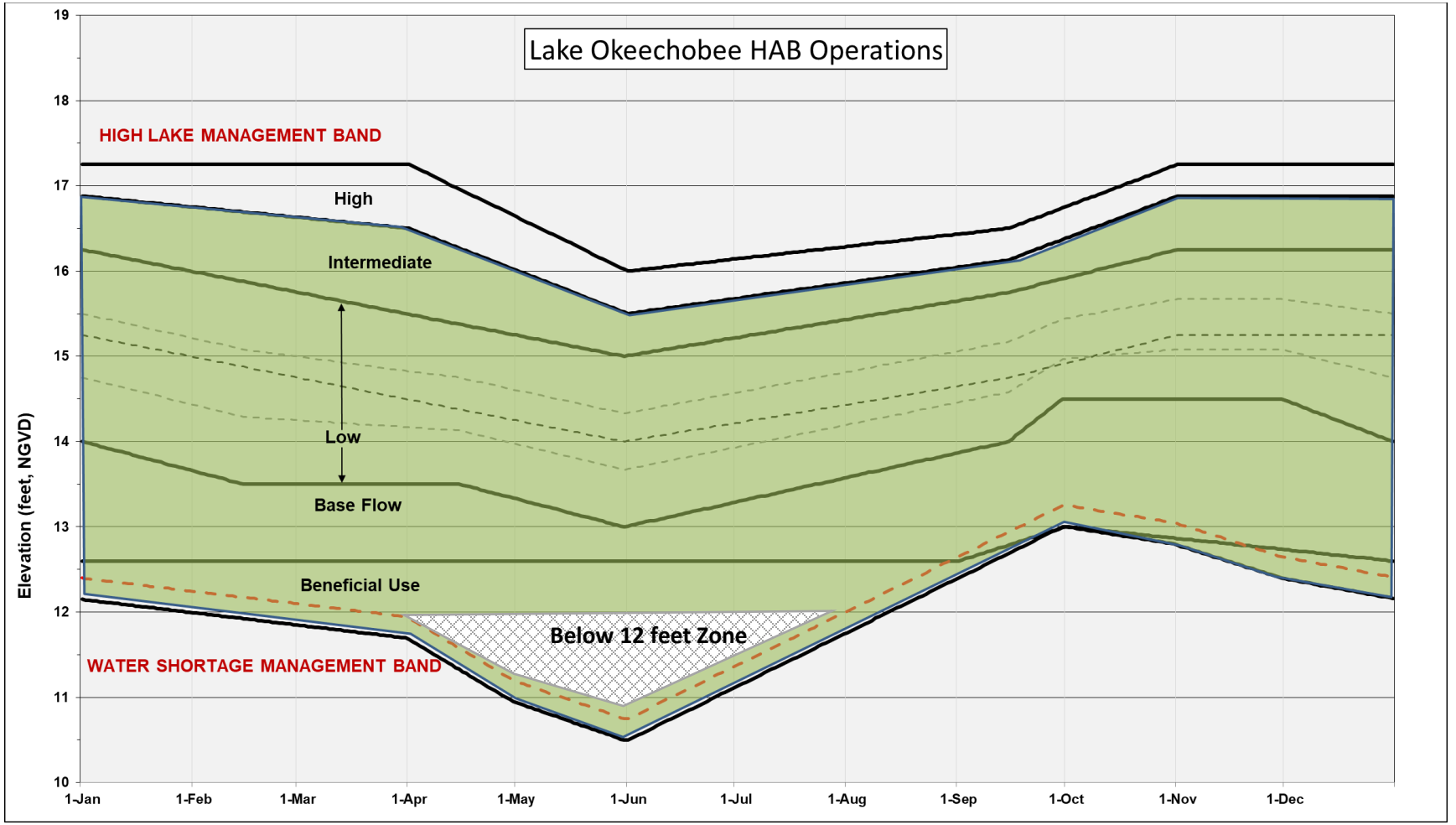

Figure 1: Range of lake stages where east/west HAB operations could occur (shaded green area) with cutbacks in deviation releases implemented 0.25 feet above Water Shortage Management Band (red dashed line), Below 12 feet Zone is shown (hatched area) to show where releases would not be made except if the lake was rising.

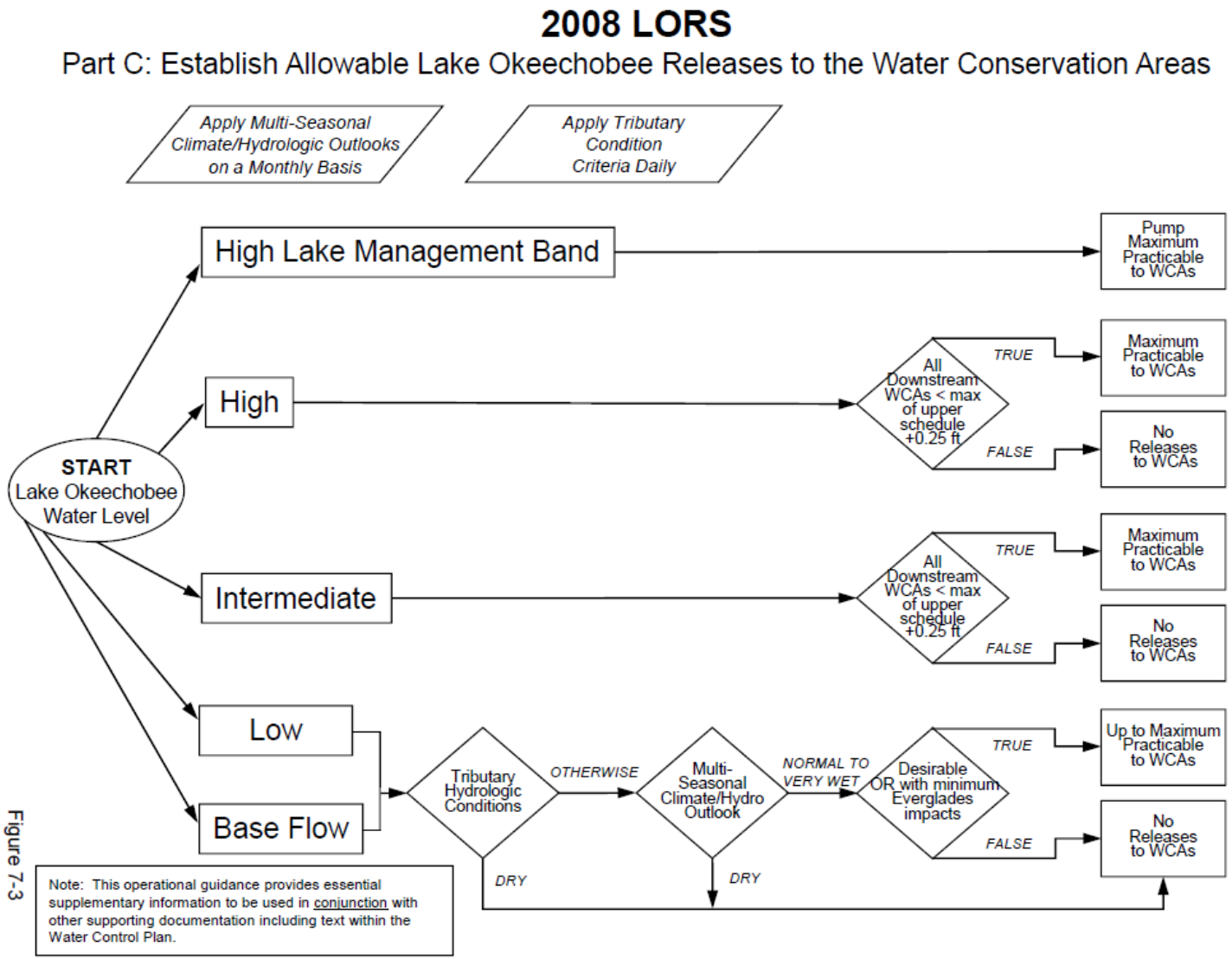

Figure 2: LORS Part C

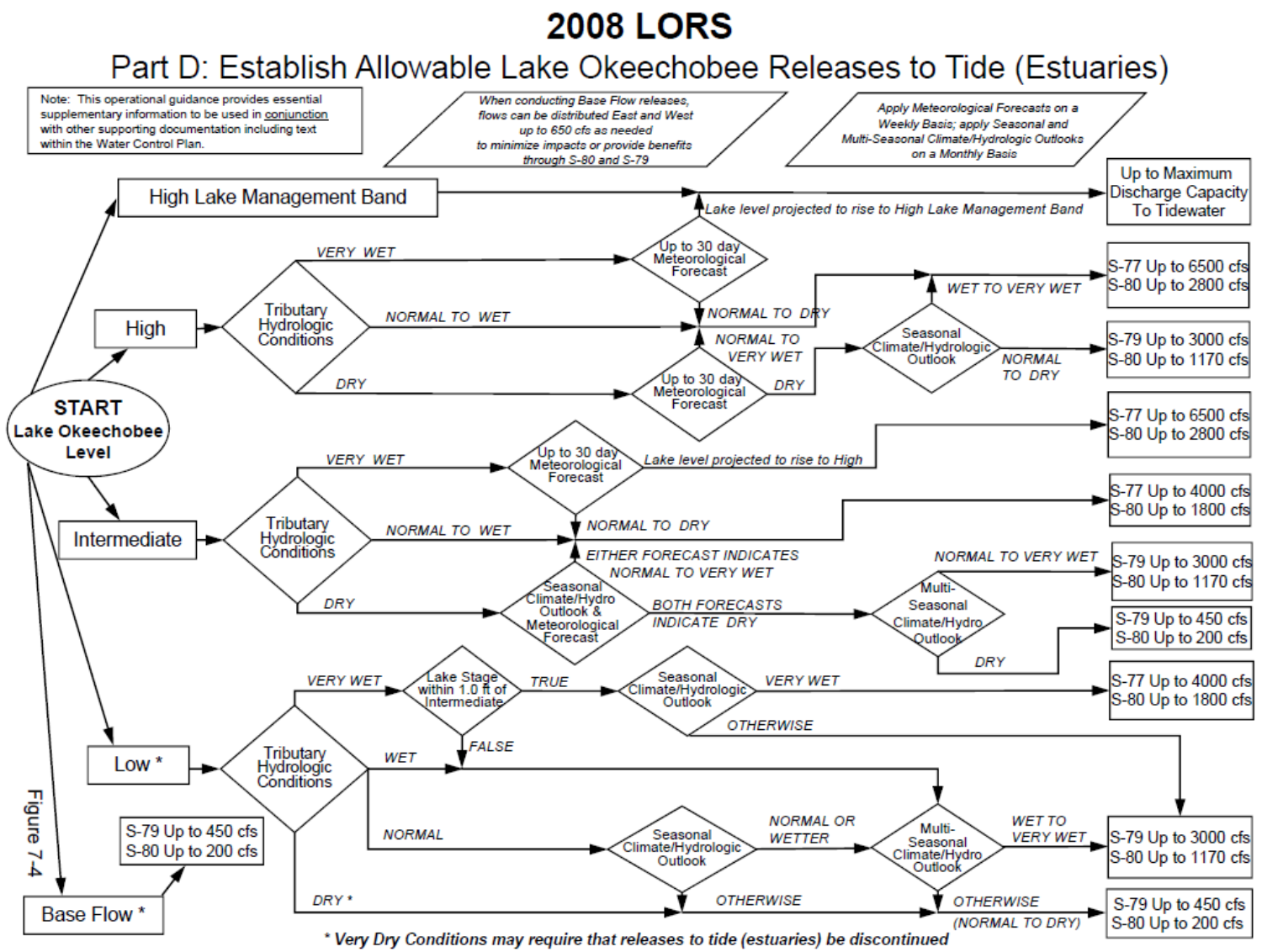

Figure 3: LORS Part D

8. References

1. https://www.floridadisaster.org/news-media/news/20180709-gov.-scott-issues-emergency-order-to-combat-algal-blooms-in-south-florida/

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APPENDIX B PERTINENT CORRESPONDENCE

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Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Sent: Wednesday, July 10, 2019 12:55 PM
To: annemullins@semtribe.com; wsteele@semtribe.com; stacymyers@semtribe.com; Bradley Mueller
Cc: Taplin, Kimberley A CIV USARMY CESAJ (US); Dunn, Angela E CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA); Alejandro, Luis Alberto CIV USARMY CESAJ (US); Lacy, Savannah H CIV USARMY CESAJ (USA); Engle, Jason A CIV USARMY CESAJ (USA); Summa, Eric P CIV USARMY CESAJ (US); Nasuti, Melissa A CIV USARMY CESAJ (USA)
Subject: LORS 2008 Deviation
Attachments: DRAFT_NFR_Potential_LORS_Deviation09Jul2019(2).docx

Importance: High

Good Afternoon,

The U.S. Army Corps of Engineers, Jacksonville District (Corps) is preparing a National Environmental Policy Act (NEPA) Environmental Assessment (EA) and Proposed Finding of No Significant Impact (FONSI) associated with a planned deviation to the water control plan for Lake Okeechobee and the Everglades Agricultural Area (also known as the Lake Okeechobee Regulation Schedule (LORS 2008)). The agency goal for LORS is to balance project purposes while taking measures it can within its authority to further public health and safety. The Corps' intent is to improve the ecological health of Lake Okeechobee and the St. Lucie and Caloosahatchee estuaries with minimal or no impact to the competing project purposes. In addition to meeting Congressionally authorized project purposes including, flood control, water supply, navigation, fish and wildlife enhancement, and recreation, LORS objectives include: a) ensuring public health and safety; b) managing Lake Okeechobee at optimal lake levels to allow recovery of the lake's environment and natural resources; and c) reducing high volume regulatory releases to the estuaries.

The Corps is preparing NEPA documentation for a planned deviation from LORS 2008 in anticipation of and following freshwater harmful algae blooms (HABs) with the goal of reducing the risk to public health and safety associated with HABs. The algae crisis has caused substantial and widespread impacts to Florida communities over the last several years (2016 and 2018) resulting in state declared emergencies in multiple counties. The proposed action will enhance the ability of the Corps to respond to HABs within its authority.

The planned deviation will alter the timing and volume of Lake Okeechobee releases to the Water Conservation Areas (WCAs), east, and/or west to allow for greater flexibility with water management decisions when HABs are present in Lake Okeechobee, the St. Lucie or Caloosahatchee estuaries or the system of canals that connect them. The planned deviation will allow the flexibility to make slightly larger releases east and west than LORS 2008 Part D (establishes allowable Lake Okeechobee releases to tide (estuaries)) calls for and make releases south when LORS Part C (establishes allowable Lake Okeechobee releases to the WCAs) does not recommend releases within the Beneficial Use Sub-Band, Base Flow Sub-Band, Low Sub-Band, and the Intermediate Sub-Band. These slightly larger releases when risk of transporting HABs is low will allow greater flexibility to reduce releases during times when HABs are present in the lake or estuaries. The releases under this flexibility would be below the harm thresholds for the Caloosahatchee and St. Lucie estuaries identified in the LORS 2008 Supplemental Environmental Impact Statement and 2007 RECOVER Northern Estuaries salinity performance measures.

Flow targets have been developed to achieve desired salinity ranges in the estuaries to meet the needs of key indicator species such as oysters and submerged aquatic vegetation. Within the Caloosahatchee Estuary, targets are based on freshwater discharges from the C-43 canal at the S-79 structure where the mean monthly inflow should be maintained

between 450 and 2,800 cubic feet per second (cfs). Flows less than 450 cfs are considered harmful since these flow levels allow salt water to intrude, raising salinity above the tolerance limits for communities of submerged aquatic vegetation in the upper estuary. Flows greater than 2800 cfs cause mortality of marine seagrasses and oysters in the lower estuary and at flows greater than 4500 cfs seagrasses begin to decline in San Carlos Bay.

Within the St. Lucie Estuary, targets are based on freshwater discharges at the S-80, S-48, S-49 and Gordy road structures where the target frequency of mean biweekly flows should be maintained between 350 and 2,000 cfs. Based on the salinity tolerances of oysters, flows less than 350 cfs result in higher salinities at which oysters are susceptible to increased predation and disease. Flows in the 350-2000 cfs range produce tolerable salinities. Flows greater than 2000 cfs result in low, intolerable salinity within the estuary. Flows greater than 3000 cfs damage seagrasses in the Indian River Lagoon.

The above targets were developed to reduce minimum discharges and mediate high flow events to the estuaries to protect estuarine habitat and biota. Under the proposed action, releases could be made in advance of HAB events, which would be limited to the maximum of either the LORS Part D guidance or 2,000 cfs measured at S-79 and up to 730 cfs measured at S-80 which are below the above identified targets.

The cumulative volume of water released under the planned deviation will be tracked against releases that would have been made under LORS 2008. The objective will be to reach a net zero balance such that the total volume released across the entire year is unchanged from the releases that would have taken place under the existing schedule without the deviation. The planned deviation would be implemented as soon as possible. The planned deviation will be in effect for a minimum duration of one year. The Corps Water Management Section's assessment of hydrometerological conditions and stakeholder or agency input may suspend or discontinue the planned deviation due to impacts greater than expected/discussed within the EA. Termination of this deviation may be implemented at any time. Reevaluation of and possible extension of the planned deviation will occur after year one of implementation. The duration of the planned deviation may extend until LORS 2008 is replaced by a new water control plan (to be called the Lake Okeechobee System Operation Manual (LOSOM)) anticipated in 2022. The decision making-making process will remain unchanged from LORS 2008 and will include the opportunity for input during the Periodic Scientists Calls.

These operations would only be utilized if any one of the conditions below were met: (1) if a HAB is currently in Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary; (2) if the state of Florida declares a state of emergency due to HABs on Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary; (3) if a HAB is anticipated to occur on Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary; (4) if a HAB has occurred and caused harm, or has impacted public safety during the last 18 months within Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary. Please refer to the attached draft HAB operational strategy for more details regarding the action.

The Corps has completed an EA and Proposed FONSI that will accompany our deviation request to the Corps' South Atlantic Division (SAD) for approval. If SAD approves, Jacksonville District plans to sign the FONSI and post for public notification and comment for a period of 30 days. Due to the nature and immediate need for this deviation, we are not able to solicit public comment prior to signature. The Corps will determine the need for supplemental NEPA once the public comment period has expired. The Corps has determined that this action is consistent to the maximum extent practicable with Florida's Coastal Management Program.

Please provide feedback at your earliest convenience to Andrew LoSchiavo at 904-232-2077 or at Andrew.J.Loschiavo@usace.army.mil. Comments by July 12, 2019 would be appreciated.

Thank you,

Melissa Nasuti
Planning and Policy Division
U.S. Army Corps of Engineers

904-232-1368

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Sent: Wednesday, July 10, 2019 4:00 PM
To: Backhouse, Paul
Cc: Taplin, Kimberley A CIV USARMY CESAJ (US)
Subject: FW: LORS 2008 Deviation
Attachments: DRAFT_NFR_Potential_LORS_Deviation09Jul2019(2).docx

Importance: High

Mr. Backhouse,

Please see email below - please confirm receipt as it was pointed out to me that you were not on the list of recipients below.

Thank you,

Melissa Nasuti
Planning and Policy Division
U.S. Army Corps of Engineers
904-232-1368

-----Original Message-----
From: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Sent: Wednesday, July 10, 2019 12:55 PM
To: annemullins@semtribe.com; wsteele@semtribe.com; stacymyers@semtribe.com; Bradley Mueller <bradleymueller@semtribe.com>
Cc: Taplin, Kimberley A CIV USARMY CESAJ (US) <Kimberley.A.Taplin@usace.army.mil>; Dunn, Angela E CIV USARMY CESAJ (USA) <Angela.E.Dunn@usace.army.mil>; LoSchiavo, Andrew J CIV USARMY CESAJ (USA) <Andrew.J.Loschiavo@usace.army.mil>; Alejandro, Luis Alberto CIV USARMY CESAJ (US) <Luis.A.Alejandro@usace.army.mil>; Lacy, Savannah H CIV USARMY CESAJ (USA) <Savannah.H.Lacy@usace.army.mil>; Engle, Jason A CIV USARMY CESAJ (USA) <Jason.A.Engle@usace.army.mil>; Summa, Eric P CIV USARMY CESAJ (US) <Eric.P.Summa@usace.army.mil>; Nasuti, Melissa A CIV USARMY CESAJ (USA) <Melissa.A.Nasuti@usace.army.mil>
Subject: LORS 2008 Deviation
Importance: High

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Thank you,

Melissa Nasuti
Planning and Policy Division
U.S. Army Corps of Engineers
904-232-1368

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Sent: Wednesday, July 10, 2019 12:51 PM
To: Duncan, Gene; 'KevinD@miccosukeetribe.com'; Craig V
Cc: Taplin, Kimberley A CIV USARMY CESAJ (US); Dunn, Angela E CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA); Alejandro, Luis Alberto CIV USARMY CESAJ (US); Lacy, Savannah H CIV USARMY CESAJ (USA); Engle, Jason A CIV USARMY CESAJ (USA); Summa, Eric P CIV USARMY CESAJ (US); Nasuti, Melissa A CIV USARMY CESAJ (USA)
Subject: LORS 2008 Deviation
Attachments: DRAFT_NFR_Potential_LORS_Deviation09Jul2019(2).docx

Importance: High

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U.S. Army Corps of Engineers

904-232-1368

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Sent: Wednesday, July 10, 2019 1:02 PM
To: Bob Johnson NPS; Adam Gelber DOI
Cc: Dunn, Angela E CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA); Alejandro, Luis Alberto CIV USARMY CESAJ (US); Lacy, Savannah H CIV USARMY CESAJ (USA); Engle, Jason A CIV USARMY CESAJ (USA); Summa, Eric P CIV USARMY CESAJ (US); Nasuti, Melissa A CIV USARMY CESAJ (USA)
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904-232-1368

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Sent: Wednesday, July 10, 2019 12:43 PM
To: Jordan.Tedio@dep.state.fl.us; Smith, Ed
Cc: Dunn, Angela E CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA); Alejandro, Luis Alberto CIV USARMY CESAJ (US); Lacy, Savannah H CIV USARMY CESAJ (USA); Engle, Jason A CIV USARMY CESAJ (USA); Summa, Eric P CIV USARMY CESAJ (US); Nasuti, Melissa A CIV USARMY CESAJ (USA)
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Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Sent: Wednesday, July 10, 2019 12:40 PM
To: Elliott, Rebecca
Cc: Dunn, Angela E CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA); Alejandro, Luis Alberto CIV USARMY CESAJ (US); Lacy, Savannah H CIV USARMY CESAJ (USA); Engle, Jason A CIV USARMY CESAJ (USA); Summa, Eric P CIV USARMY CESAJ (US); Nasuti, Melissa A CIV USARMY CESAJ (USA)
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Melissa Nasuti
Planning and Policy Division
U.S. Army Corps of Engineers
904-232-1368

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Sent: Wednesday, July 10, 2019 12:45 PM
To: Erskine, James
Cc: Dunn, Angela E CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA); Alejandro, Luis Alberto CIV USARMY CESAJ (US); Lacy, Savannah H CIV USARMY CESAJ (USA); Engle, Jason A CIV USARMY CESAJ (USA); Summa, Eric P CIV USARMY CESAJ (US); Nasuti, Melissa A CIV USARMY CESAJ (USA)
Subject: LORS 2008 Deviation
Attachments: DRAFT_NFR_Potential_LORS_Deviation09Jul2019(2).docx

Good Afternoon,

The U.S. Army Corps of Engineers, Jacksonville District (Corps) is preparing a National Environmental Policy Act (NEPA) Environmental Assessment (EA) and Proposed Finding of No Significant Impact (FONSI) associated with a planned deviation to the water control plan for Lake Okeechobee and the Everglades Agricultural Area (also known as the Lake Okeechobee Regulation Schedule (LORS 2008)). The agency goal for LORS is to balance project purposes while taking measures it can within its authority to further public health and safety. The Corps' intent is to improve the ecological health of Lake Okeechobee and the St. Lucie and Caloosahatchee estuaries with minimal or no impact to the competing project purposes. In addition to meeting Congressionally authorized project purposes including, flood control, water supply, navigation, fish and wildlife enhancement, and recreation, LORS objectives include: a) ensuring public health and safety; b) managing Lake Okeechobee at optimal lake levels to allow recovery of the lake's environment and natural resources; and c) reducing high volume regulatory releases to the estuaries.

The Corps is preparing NEPA documentation for a planned deviation from LORS 2008 in anticipation of and following freshwater harmful algae blooms (HABs) with the goal of reducing the risk to public health and safety associated with HABs. The algae crisis has caused substantial and widespread impacts to Florida communities over the last several years (2016 and 2018) resulting in state declared emergencies in multiple counties. The proposed action will enhance the ability of the Corps to respond to HABs within its authority.

The planned deviation will alter the timing and volume of Lake Okeechobee releases to the Water Conservation Areas (WCAs), east, and/or west to allow for greater flexibility with water management decisions when HABs are present in Lake Okeechobee, the St. Lucie or Caloosahatchee estuaries or the system of canals that connect them. The planned deviation will allow the flexibility to make slightly larger releases east and west than LORS 2008 Part D (establishes allowable Lake Okeechobee releases to tide (estuaries)) calls for and make releases south when LORS Part C (establishes allowable Lake Okeechobee releases to the WCAs) does not recommend releases within the Beneficial Use Sub-Band, Base Flow Sub-Band, Low Sub-Band, and the Intermediate Sub-Band. These slightly larger releases when risk of transporting HABs is low will allow greater flexibility to reduce releases during times when HABs are present in the lake or estuaries. The releases under this flexibility would be below the harm thresholds for the Caloosahatchee and St. Lucie estuaries identified in the LORS 2008 Supplemental Environmental Impact Statement and 2007 RECOVER Northern Estuaries salinity performance measures.

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The cumulative volume of water released under the planned deviation will be tracked against releases that would have been made under LORS 2008. The objective will be to reach a net zero balance such that the total volume released across the entire year is unchanged from the releases that would have taken place under the existing schedule without the deviation. The planned deviation would be implemented as soon as possible. The planned deviation will be in effect for a minimum duration of one year. The Corps Water Management Section's assessment of hydrometerological conditions and stakeholder or agency input may suspend or discontinue the planned deviation due to impacts greater than expected/discussed within the EA. Termination of this deviation may be implemented at any time. Reevaluation of and possible extension of the planned deviation will occur after year one of implementation. The duration of the planned deviation may extend until LORS 2008 is replaced by a new water control plan (to be called the Lake Okeechobee System Operation Manual (LOSOM)) anticipated in 2022. The decision making-making process will remain unchanged from LORS 2008 and will include the opportunity for input during the Periodic Scientists Calls.

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U.S. Army Corps of Engineers
904-232-1368

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Sent: Wednesday, July 10, 2019 7:21 PM
To: Bernhart, David; stephania.bolden@noaa.gov
Cc: Dunn, Angela E CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA); Alejandro, Luis Alberto CIV USARMY CESAJ (US); Engle, Jason A CIV USARMY CESAJ (USA); Lacy, Savannah H CIV USARMY CESAJ (USA); Nasuti, Melissa A CIV USARMY CESAJ (USA); Summa, Eric P CIV USARMY CESAJ (US)
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The Corps is preparing NEPA documentation for a planned deviation from LORS 2008 in anticipation of and following freshwater harmful algae blooms (HABs) with the goal of reducing the risk to public health and safety associated with HABs. The algae crisis has caused substantial and widespread impacts to Florida communities over the last several years (2016 and 2018) resulting in state declared emergencies in multiple counties. The proposed action will enhance the ability of the Corps to respond to HABs within its authority as defined by LORS 2008.

The planned deviation will alter the timing and volume of Lake Okeechobee releases to the Water Conservation Areas (WCAs), east, and/or west to allow for greater flexibility with water management decisions when HABs are present in Lake Okeechobee, the St. Lucie or Caloosahatchee estuaries or the system of canals that connect them. The planned deviation will allow the flexibility to make slightly larger releases east and west than LORS 2008 Part D (establishes allowable Lake Okeechobee releases to tide (estuaries)) calls for and make releases south when LORS Part C (establishes allowable Lake Okeechobee releases to the WCAs) does not recommend releases within the Beneficial Use Sub-Band, Base Flow Sub-Band, Low Sub-Band, and the Intermediate Sub-Band. These slightly larger releases when risk of transporting HABs is low will allow greater flexibility to reduce releases during times when HABs are present in the lake or estuaries. The releases under this flexibility would be below the harm thresholds for the Caloosahatchee and St. Lucie estuaries identified in the LORS 2008 Supplemental Environmental Impact Statement (SEIS) and 2007 RECOVER Northern Estuaries salinity performance measure.

Flow targets have been developed to achieve desired salinity ranges in the estuaries to meet the needs of key indicator species such as oysters and submerged aquatic vegetation. Within the Caloosahatchee Estuary, targets are based on freshwater discharges from the C-43 canal at the S-79 structure where the mean monthly inflow should be maintained below 2,800 cubic feet per second (cfs). Flows greater than 2800 cfs cause mortality of marine seagrasses and oysters in the lower estuary and at flows greater than 4500 cfs, seagrasses begin to decline in San Carlos Bay.

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The Corps has completed an EA and Proposed FONSI that will accompany our deviation request to the Corps' South Atlantic Division (SAD) for approval. If SAD approves the proposed deviation, the Jacksonville District plans to sign the FONSI and post for public notification and comment for a period of 30 days. Due to the nature and immediate need for this deviation, we are not able to solicit public comment prior to signature of the FONSI The Corps will determine the need for supplemental NEPA once the public comment period has expired. The Corps has determined that this action is consistent to the maximum extent practicable with Florida's Coastal Management Program because it falls within the overall limits of LORS 2008.

The Corps acknowledges the potential usage and occurrence of threatened and endangered species and/or critical habitat within the project area. The Corps is requesting via this email expedited consultation under the Endangered Species Act of 1973, as amended. The Corps has made the following species effects determinations. Specifically, the Corps has determined that the planned temporary deviation will have no effect on the Johnson's seagrass (Halophila johnsonii) and its designated critical habitat, the smalltooth sawfish (Pristis pectinata) and its designated critical habitat, the loggerhead sea turtle (Caretta caretta), the leatherback sea turtle (Dermochelys coriacea), the Kemp's ridley sea turtle (Lepidochelys kempii), hawksbill sea turtle (Eretmochelys imbricata), the green sea turtle (Chelonia mydas), the rough cactus coral (Mycetophyllia ferox), the lobed star coral (Orbicella annularis), the mountainous star coral ((Orbicella faveolata), the boulder star coral (Orbicella franksi), the Elkhorn coral (Acropora palmata), the Staghorn coral (Acropora cervicornis), the Nassau grouper (Epinephelus striatus), the Giant manta ray (Manta birostris) and the oceanic white tip shark (Carcharhinus longimanus). Additional justification for the respective effects determinations for the smalltooth sawfish and Johnson's seagrass is summarized below.

Smalltooth sawfish and Johnson's seagrass:

The planned deviation releases will be no more than 2000 cfs from S-79 to the Caloosahatchee River and 730 cfs from S-80 to the St. Lucie River. This is below the harm threshold for the Caloosahatchee River of 2800 cfs which is protective of salinities at shell point for SAV and for oysters and a salinity range of 10 -30 practical salinity units (PSU) between Cape Coral and Shell Point. The maximum 2000 cfs would result in a range of 13-27 PSU (RECOVER, 2014). This range of 10-30 PSU would likely continue to provide ample habitat within the range of 18-30 PSU along the shore line where juvenile sawfish are found (Poulakis, et al., 2011). LORS deviation releases would be smaller than the larger flow events that would cause additional movement downstream of smalltooth sawfish (Scharer et al., 2017). The planned deviation releases would be below the 2000 cfs threshold on the St. Lucie that would cause salinities to be in the 10-26 PSU range for oysters in the middle estuary. This is also far below the 3000 cfs threshold that would impact salinities and potentially water clarity issues at the A1A bridge just west of seagrass habitats in the mouth of the estuary, where Johnson's seagrass has been located (RECOVER, 2014).

Due to the immediate need for this deviation, the Corps specifically requests your written concurrence on our species effects determinations by July 16, 2019 to Andrew LoSchiavo at Andrew.J.Loschiavo@usace.army.mil. The Corps commits to avoiding and minimizing for adverse effects on federally listed species and would continue to coordinate with USFWS as needed.

References

Poulakis, G.R., P.W. Stevens, A. A. Timmers, T.R. Wiley, and C.A. Simpfendorfer. 2011. Abiotic affinities and spatiotemporal distribution of the endangered smalltooth sawfish, Pristis pectinata, in a south-western Florida nursery. Marine and Freshwater Research 62: 1165-1177.

RECOVER 2007. Northern Estuaries Performance Measure Salinity Envelopes, U.S. Army Corps of Engineers. Jacksonville, Fl.

RECOVER, 2014. 2014 System Status Report. Chapter 4 – Northern Estuaries. U.S. Army Corps of Engineers. Jacksonville, Fl. Pg. 4-35 to 4-36. https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll7/id/8694

Scharer, R. M., P.W. Stevens, C.P. Shea, and G.R. Poulakis. 2017. All nurseries are not created equal: Large-scale habitat use patterns in tow smalltooth sawfish nurseries. Endangered Species Research 34: 473-492.

Thanks,

Melissa Nasuti
Planning and Policy Division
U.S. Army Corps of Engineers
904-232-1368

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Sent: Wednesday, July 10, 2019 12:57 PM
To: Kirkland, Suelynn
Cc: Dunn, Angela E CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA); Alejandro, Luis Alberto CIV USARMY CESAJ (US); Lacy, Savannah H CIV USARMY CESAJ (USA); Engle, Jason A CIV USARMY CESAJ (USA); Summa, Eric P CIV USARMY CESAJ (US)
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Thank you,

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Planning and Policy Division
U.S. Army Corps of Engineers
904-232-1368

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Sent: Wednesday, July 10, 2019 12:32 PM
To: Jamie Higgins EPA; Cecelia Harper EPA
Cc: Dunn, Angela E CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA); Alejandro, Luis Alberto CIV USARMY CESAJ (US); Summa, Eric P CIV USARMY CESAJ (US); Engle, Jason A CIV USARMY CESAJ (USA); Lacy, Savannah H CIV USARMY CESAJ (USA); Nasuti, Melissa A CIV USARMY CESAJ (USA)
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The cumulative volume of water released under the planned deviation will be tracked against releases that would have been made under LORS 2008. The objective will be to reach a net zero balance such that the total volume released across the entire year is unchanged from the releases that would have taken place under the existing schedule without the deviation. The planned deviation would be implemented as soon as possible. The planned deviation will be in effect for a minimum duration of one year. The Corps Water Management Section's assessment of hydrometerological conditions and stakeholder or agency input may suspend or discontinue the planned deviation due to impacts greater than expected/discussed within the EA. Termination of this deviation may be implemented at any time. Reevaluation of and possible extension of the planned deviation will occur after year one of implementation. The duration of the planned deviation may extend until LORS 2008 is replaced by a new water control plan (to be called the Lake Okeechobee System Operation Manual (LOSOM)) anticipated in 2022. The decision making-making process will remain unchanged from LORS 2008 and will include the opportunity for input during the Periodic Scientists Calls.

These operations would only be utilized if any one of the conditions below were met: (1) if a HAB is currently in Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary; (2) if the state of Florida declares a state of emergency due to HABs on Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary; (3) if a HAB is anticipated to occur on Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary; (4) if a HAB has occurred and caused harm, or has impacted public safety during the last 18 months within Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary. Please refer to the attached draft HAB operational strategy for more details regarding the action.

The Corps has completed an EA and Proposed FONSI that will accompany our deviation request to the Corps' South Atlantic Division (SAD) for approval. If SAD approves, Jacksonville District plans to sign the FONSI and post for public notification and comment for a period of 30 days. Due to the nature and immediate need for this deviation, we are not able to solicit public comment prior to signature. The Corps will determine the need for supplemental NEPA once the public comment period has expired. The Corps has determined that this action is consistent to the maximum extent practicable with Florida's Coastal Management Program.

Please provide feedback at your earliest convenience to Andrew LoSchiavo at 904-232-2077 or at Andrew.J.Loschiavo@usace.army.mil. Comments by July 12, 2019 would be appreciated.

Thank you,

Melissa Nasuti
Planning and Policy Division
U.S. Army Corps of Engineers
904-232-1368

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Sent: Wednesday, July 10, 2019 2:34 PM
To: Progulske, Bob; miles meyer; Breen, Timothy; Adam Gelber DOI
Cc: Dunn, Angela E CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA); Alejandro, Luis Alberto CIV USARMY CESAJ (US); Lacy, Savannah H CIV USARMY CESAJ (USA); Engle, Jason A CIV USARMY CESAJ (USA); Summa, Eric P CIV USARMY CESAJ (US); Nasuti, Melissa A CIV USARMY CESAJ (USA)
Subject: LORS 2008 Deviation
Attachments: DRAFT_NFR_Potential_LORS_Deviation09Jul2019(2).docx

Importance: High

Good Afternoon,

The U.S. Army Corps of Engineers, Jacksonville District (Corps) is preparing a National Environmental Policy Act (NEPA) Environmental Assessment (EA) and Proposed Finding of No Significant Impact (FONSI) associated with a planned deviation to the water control plan for Lake Okeechobee and the Everglades Agricultural Area (also known as the Lake Okeechobee Regulation Schedule (LORS 2008)). The agency goal for LORS is to balance project purposes while taking measures it can within its authority to further public health and safety. The Corps' intent is to improve the ecological health of Lake Okeechobee and the St. Lucie and Caloosahatchee estuaries, with minimal or no impact to the competing project purposes. In addition to meeting Congressionally authorized project purposes including flood control, water supply, navigation, fish and wildlife enhancement, and recreation, LORS objectives include: a) ensuring public health and safety; b) managing Lake Okeechobee at optimal lake levels to allow recovery of the lake's environment and natural resources; and c) reducing high volume regulatory releases to the estuaries.

The Corps is preparing NEPA documentation for a planned deviation from LORS 2008 in anticipation of and following freshwater harmful algae blooms (HABs) with the goal of reducing the risk to public health and safety associated with HABs. The algae crisis has caused substantial and widespread impacts to Florida communities over the last several years (2016 and 2018) resulting in state declared emergencies in multiple counties. The proposed action will enhance the ability of the Corps to respond to HABs within its authority as defined by LORS 2008.

The planned deviation will alter the timing and volume of Lake Okeechobee releases to the Water Conservation Areas (WCAs), east, and/or west to allow for greater flexibility with water management decisions when HABs are present in Lake Okeechobee, the St. Lucie or Caloosahatchee estuaries or the system of canals that connect them. The planned deviation will allow the flexibility to make slightly larger releases east and west than LORS 2008 Part D (establishes allowable Lake Okeechobee releases to tide (estuaries)) calls for and make releases south when LORS Part C (establishes allowable Lake Okeechobee releases to the WCAs) does not recommend releases within the Beneficial Use Sub-Band, Base Flow Sub-Band, Low Sub-Band, and the Intermediate Sub-Band. These slightly larger releases when risk of transporting HABs is low will allow greater flexibility to reduce releases during times when HABs are present in the lake or estuaries. The releases under this flexibility would be below the harm thresholds for the Caloosahatchee and St. Lucie estuaries identified in the LORS 2008 Supplemental Environmental Impact Statement (SEIS) and 2007 RECOVER Northern Estuaries salinity performance measure.

Flow targets have been developed to achieve desired salinity ranges in the estuaries to meet the needs of key indicator species such as oysters and submerged aquatic vegetation. Within the Caloosahatchee Estuary, targets are based on freshwater discharges from the C-43 canal at the S-79 structure where the mean monthly inflow should be maintained below 2,800 cubic feet per second (cfs). Flows greater than 2800 cfs cause mortality of marine seagrasses and oysters in the lower estuary and at flows greater than 4500 cfs, seagrasses begin to decline in San Carlos Bay.

Within the St. Lucie Estuary, targets are based on freshwater discharges at the S-80, S-48, S-49 and Gordy road structures where the target frequency of mean biweekly flows should be maintained between below 2,000 cfs. Flows in the 350-2000 cfs range produce tolerable salinities. Flows greater than 2000 cfs result in low, intolerable salinity within the estuary. Flows greater than 3000 cfs damage seagrasses in the Indian River Lagoon.
The above targets were developed to reduce minimum discharges and mediate high flow events to the estuaries to protect estuarine habitat and biota. Under the proposed action, releases could be made in advance of HAB events, which would be limited to the maximum of either the LORS Part D guidance or 2,000 cfs measured at S-79 and up to 730 cfs measured at S-80 which are below the above identified targets.

The planned deviation will also allow the flexibility to make up to maximum practicable releases south to the WCAs when LORS Part C does not recommend release. Releases made south would be done for HAB operations only when in the Low, Base flow, and Beneficial Use Sub-bands and only if all WCAs were less than 0.25 feet, NGVD above the max of the upper schedule (same conditions as LORS Part C guidance for Intermediate and High sub-bands). Hydrologic, ecological, and water supply conditions within the WCAs would be taken into account before sending water south, just as releases south from Lake Okeechobee is typically managed. No impacts to the WCAs are anticipated for HAB operations.

The cumulative volume of water released under the planned deviation will be tracked against releases that would have made under LORS 2008. The objective will be to reach a net zero balance such that the total volume released across the entire year is unchanged from the releases that would have taken place under the existing schedule without the deviation. The planned deviation would be implemented as soon as possible. The planned deviation will be in effect for a minimum duration of one year. The Corps Water Management Section's assessment of hydrometerological conditions and stakeholder or agency input may suspend or discontinue the planned deviation due to impacts greater than expected/discussed within this EA. Termination of this deviation may be implemented at any time. Reevaluation of and possible extension of the planned deviation will occur after year one of implementation. The duration of the planned deviation may extend until LORS 2008 is replaced by a new water control plan (to be called the Lake Okeechobee System Operation Manual (LOSOM)) anticipated in 2022. The decision making-making process will remain unchanged from LORS 2008 and will include the opportunity for input during the Periodic Scientist Calls.

These operations would only be utilized if any one of the conditions below were met: (1) if a HAB is currently in Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary; (2) if the state of Florida declares a state of emergency due to HABs on Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary; (3) if a HAB is anticipated to occur on Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary; (4) if a HAB has occurred and caused harm, or have impacted public safety during the last 18 months within Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary. Determinations will be made based on best science available on HAB occurrence or likelihood of occurrence in coordination with agency experts at the South Florida Water Management District, U.S. Geological Survey, Florida Department of Environmental Protection, National Oceanic and Atmospheric Administration, State Department of Health, and U.S. Environmental Protection Agency. Please refer to the attached draft HAB operational strategy for more details regarding the action.

The Corps has completed an EA and Proposed FONSI that will accompany our deviation request to the Corps' South Atlantic Division (SAD) for approval. If SAD approves the proposed deviation, the Jacksonville District plans to sign the FONSI and post for public notification and comment for a period of 30 days. Due to the nature and immediate need for this deviation, we are not able to solicit public comment prior to signature of the FONSI The Corps will determine the need for supplemental NEPA once the public comment period has expired. The Corps has determined that this action is consistent to the maximum extent practicable with Florida's Coastal Management Program because it falls within the overall limits of LORS 2008. The Corps acknowledges the potential usage and occurrence of threatened and endangered species and/or critical habitat within the project area. The Corps is requesting via this email expedited consultation under the Endangered Species Act of 1973, as amended. The Corps has made the following species effects determinations as related to the species identified within the June 4, 2018 LORS Biological Opinion. Specifically, the Corps has determined that the planned temporary deviation will have no effect on the threatened Florida manatee

(Trichechus manatus latirostris) and its designated critical habitat, the endangered Florida bonneted bat (Eumops floridanus), the endangered Cape Sable seaside sparrow (CSSS) (Ammodramus maritimus mirabilis) and its designated critical habitat, the endangered Everglade snail kite (Rostrhamus sociabilis plumbeus), and its designated critical habitat, the threatened Northern crested caracara (Caracra cheriway), the threatened wood stork (Mycteria americana), the threatened Eastern indigo snake (Drymarchon corais couperi), and the endangered Okeechobee gourd (Cucurbita okeechobeensis ssp. okeechobeensis). Justification for the respective effects determinations is summarized below.

Everglade Snail Kite and Wood Stork:

The planned deviation releases will be no greater than 2730 cubic feet per second (cfs) (2,000 cfs from S-79 and 730 cfs at S-80), which is 2,080 cfs over base flow releases of 650 cfs. 2,730 cfs would correspond to 0.37 feet over a 30 day release, which is 0.28 feet more than would otherwise be released under normal operations. Under this maximum release scenario, the recession rate per week would be 0.09 feet per week, which is below the 0.16 feet per week recession rate identified in the Fletcher et al 2017 Snail Kite Demographics Report (reference June 4, 2018 LORS BO). Fletcher et al. (2017) modeled recession rates and indicated daily nest survival decreases when recession rates exceed 0.16 feet per week. Rapid recession may result in stranded adult snails that may be unavailable to snail kites, consequently reducing snail kite foraging and breeding suitability, and juvenile snail kite survival. Rapid recessions may also reduce suitability of nesting substrates (nest collapse in cattails), or dewatering the area around the nest thereby facilitating nest predation.

This is also below the 0.5 feet recession per month that is important for wood stork foraging.

Most likely during the dry season, releases would be lower than 2,730 cfs and more likely around 1,000 cfs if no rain is projected to minimize high recession rates and risk of low lake stages, which would be a 0.03 feet week recession or 0.12 feet per month. During this wet season (Summer/Fall 2019), the lake stage is low around 11.36 feet, NGVD and pre-emptive releases would only be made if the rate of rise was greater than 0.15 feet per week. In this scenario, the lake stage would be rising towards the Low sub-band and end up above the critical lake stage threshold of 12.7 feet, NGVD by the start of the snail kite nesting season. This stage was identified in the Fletcher et.al. 2017 Snail Kite Demographics Report (reference June 4, 2018 BO) as being the point where stage and recession rates can affect snail kite nesting success.

Florida manatee, Florida bonneted bat, CSSS, Northern crested caracara, Eastern Indigo Snake and Okeechobee Gourd:

With respect to overall lake stage, the net lake stage will be zero and would pose no effect for the Florida manatee, Florida bonneted bat, the Northern crested caracara, the eastern indigo snake, and the Okeechobee gourd. As noted above, the maximum releases under the proposed action are below the thresholds of 2800 cfs on the Caloosahatchee and 2000 cfs total on the St. Lucie to avoid impacts to aquatic vegetation that is part of manatee critical habitat. Flows to the WCAs will still be regulated by canal and Stormwater Treatment Area capacity and would not be sent if stages are over 0.25 feet, NGVD of the WCA 3 regulation schedule. Therefore, effects on downstream resources due to potential increased stage would be minimal to none. The proposed action would pose no effect on the CSSS and its designated critical habitat.

Due to the immediate need for this deviation, the Corps specifically requests your written concurrence on our species effects determinations by July 16, 2019 to Andrew LoSchiavo at Andrew.J.Loschiavo@usace.army.mil. The Corps commits to avoiding and minimizing for adverse effects on federally listed species and would continue to coordinate with USFWS as needed.

References: Fletcher, R., E. Robertson, C. Poli, B. Jeffery, B. Reichert, and C. Cattau. 2016. Snail Kite Demography 2015 Annual Report. U.S. Army Corps of Engineers Contract # W912HZ-15-2-0010.

Thanks,

Melissa Nasuti
Planning and Policy Division
U.S. Army Corps of Engineers
904-232-1368

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Higgins, Jamie <Higgins.Jamie@epa.gov>
Sent: Friday, July 12, 2019 2:56 PM
To: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Cc: Dunn, Angela E CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA); Summa, Eric P CIV USARMY CESAJ (US); Harper, Cecelia; Militscher, Chris; Calli, Rosemary; Zapata, Cesar; Gettle, Jeaneanne; Allenbach, Becky; Mcgill, Thomas; Higgins, Jamie
Subject: [Non-DoD Source] RE: LORS 2008 Deviation

Melissa,

Please find below EPA's comments regarding the LORS 2008 Deviation:

* On page 3 of the fact sheet, the USACE states, "When initializing HAB operations, effort should be made to engage with federal and state agencies/task forces to develop a unique plan on timing and quantity of advance releases/make up releases to be made under these operations, as the expertise in water quality lies outside the Corps." The EPA recommends adding the word "authority" after Corps as it appears to be omitted.
* On page 4 of the fact sheet, the USACE states, "Releases south would be evaluated first, consistent with LORS 2008 intent. If LORS Part C (see Figure 2) does not recommend release south, and HAB conditions are in effect (as defined in section 6-a were in effect), then releases south up to maximum practicable could be made." The EPA recommends USACE describe the definition of "maximum practicable".

We appreciate the opportunity to review this document/action and look forward to reviewing the EA once it is released. Please contact me should you have questions.
Thanks,
Jamie

Jamie Higgins
National Environmental Policy Act (NEPA) Program Office Resource Conservation Restoration Division Region 4, Environmental Protection Agency
61 Forsyth Street, SW
Atlanta, GA 30303
404-562-9681

From: Nasuti, Melissa A CIV USARMY CESAJ (USA) <Melissa.A.Nasuti@usace.army.mil>
Sent: Wednesday, July 10, 2019 12:32 PM
To: Higgins, Jamie <Higgins.Jamie@epa.gov>; Harper, Cecelia <Harper.Cecelia@epa.gov>
Cc: Dunn, Angela E CIV USARMY CESAJ (USA) <Angela.E.Dunn@usace.army.mil>; LoSchiavo, Andrew J CIV USARMY CESAJ (USA) <Andrew.J.Loschiavo@usace.army.mil>; Alejandro, Luis Alberto CIV USARMY CESAJ (US) <Luis.A.Alejandro@usace.army.mil>; Summa, Eric P CIV USARMY CESAJ (US) <Eric.P.Summa@usace.army.mil>; Engle, Jason A CIV USARMY CESAJ (USA) <Jason.A.Engle@usace.army.mil>; Lacy, Savannah H CIV USARMY CESAJ (USA) <Savannah.H.Lacy@usace.army.mil>; Nasuti, Melissa A CIV USARMY CESAJ (USA) <Melissa.A.Nasuti@usace.army.mil>

Subject: LORS 2008 Deviation
Importance: High

Good Afternoon,

The U.S. Army Corps of Engineers, Jacksonville District (Corps) is preparing a National Environmental Policy Act (NEPA) Environmental Assessment (EA) and Proposed Finding of No Significant Impact (FONSI) associated with a planned deviation to the water control plan for Lake Okeechobee and the Everglades Agricultural Area (also known as the Lake Okeechobee Regulation Schedule (LORS 2008)). The agency goal for LORS is to balance project purposes while taking measures it can within its authority to further public health and safety. The Corps' intent is to improve the ecological health of Lake Okeechobee and the St. Lucie and Caloosahatchee estuaries with minimal or no impact to the competing project purposes. In addition to meeting Congressionally authorized project purposes including, flood control, water supply, navigation, fish and wildlife enhancement, and recreation, LORS objectives include: a) ensuring public health and safety; b) managing Lake Okeechobee at optimal lake levels to allow recovery of the lake's environment and natural resources; and c) reducing high volume regulatory releases to the estuaries.

The Corps is preparing NEPA documentation for a planned deviation from LORS 2008 in anticipation of and following freshwater harmful algae blooms (HABs) with the goal of reducing the risk to public health and safety associated with HABs. The algae crisis has caused substantial and widespread impacts to Florida communities over the last several years (2016 and 2018) resulting in state declared emergencies in multiple counties. The proposed action will enhance the ability of the Corps to respond to HABs within its authority.

The planned deviation will alter the timing and volume of Lake Okeechobee releases to the Water Conservation Areas (WCAs), east, and/or west to allow for greater flexibility with water management decisions when HABs are present in Lake Okeechobee, the St. Lucie or Caloosahatchee estuaries or the system of canals that connect them. The planned deviation will allow the flexibility to make slightly larger releases east and west than LORS 2008 Part D (establishes allowable Lake Okeechobee releases to tide (estuaries)) calls for and make releases south when LORS Part C (establishes allowable Lake Okeechobee releases to the WCAs) does not recommend releases within the Beneficial Use Sub-Band, Base Flow Sub-Band, Low Sub-Band, and the Intermediate Sub-Band. These slightly larger releases when risk of transporting HABs is low will allow greater flexibility to reduce releases during times when HABs are present in the lake or estuaries. The releases under this flexibility would be below the harm thresholds for the Caloosahatchee and St. Lucie estuaries identified in the LORS 2008 Supplemental Environmental Impact Statement and 2007 RECOVER Northern Estuaries salinity performance measures.

Flow targets have been developed to achieve desired salinity ranges in the estuaries to meet the needs of key indicator species such as oysters and submerged aquatic vegetation. Within the Caloosahatchee Estuary, targets are based on freshwater discharges from the C-43 canal at the S-79 structure where the mean monthly inflow should be maintained between 450 and 2,800 cubic feet per second (cfs). Flows less than 450 cfs are considered harmful since these flow levels allow salt water to intrude, raising salinity above the tolerance limits for communities of submerged aquatic vegetation in the upper estuary. Flows greater than 2800 cfs cause mortality of marine seagrasses and oysters in the lower estuary and at flows greater than 4500 cfs, seagrasses begin to decline in San Carlos Bay.

Within the St. Lucie Estuary, targets are based on freshwater discharges at the S-80, S-48, S-49 and Gordy road structures where the target frequency of mean biweekly flows should be maintained between 350 and 2,000 cfs. Based on the salinity tolerances of oysters, flows less than 350 cfs result in higher salinities at which oysters are susceptible to increased predation and disease. Flows in the 350-2000 cfs range produce tolerable salinities. Flows greater than 2000 cfs result in low, intolerable salinity within the estuary. Flows greater than 3000 cfs damage seagrasses in the Indian River Lagoon.

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which would be limited to the maximum of either the LORS Part D guidance or 2,000 cfs measured at S-79 and up to 730 cfs measured at S-80 which are below the above identified targets.

The cumulative volume of water released under the planned deviation will be tracked against releases that would have been made under LORS 2008. The objective will be to reach a net zero balance such that the total volume released across the entire year is unchanged from the releases that would have taken place under the existing schedule without the deviation. The planned deviation would be implemented as soon as possible. The planned deviation will be in effect for a minimum duration of one year. The Corps Water Management Section's assessment of hydrometerological conditions and stakeholder or agency input may suspend or discontinue the planned deviation due to impacts greater than expected/discussed within the EA. Termination of this deviation may be implemented at any time. Reevaluation of and possible extension of the planned deviation will occur after year one of implementation. The duration of the planned deviation may extend until LORS 2008 is replaced by a new water control plan (to be called the Lake Okeechobee System Operation Manual (LOSOM)) anticipated in 2022. The decision making-making process will remain unchanged from LORS 2008 and will include the opportunity for input during the Periodic Scientists Calls.

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The Corps has completed an EA and Proposed FONSI that will accompany our deviation request to the Corps' South Atlantic Division (SAD) for approval. If SAD approves, Jacksonville District plans to sign the FONSI and post for public notification and comment for a period of 30 days. Due to the nature and immediate need for this deviation, we are not able to solicit public comment prior to signature. The Corps will determine the need for supplemental NEPA once the public comment period has expired. The Corps has determined that this action is consistent to the maximum extent practicable with Florida's Coastal Management Program.

Please provide feedback at your earliest convenience to Andrew LoSchiavo at 904-232-2077 or at Andrew.J.Loschiavo@usace.army.mil. Comments by July 12, 2019 would be appreciated.

Thank you,

Melissa Nasuti
Planning and Policy Division
U.S. Army Corps of Engineers
904-232-1368

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Rudnick, David <david_rudnick@nps.gov>
Sent: Thursday, July 11, 2019 6:29 PM
To: Nasuti, Melissa A CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA)
Cc: Robert Johnson
Subject: [Non-DoD Source] LORS 208 Deviation proposal

Melissa, Andy - I read the July 9, 2019 draft of the "Harmful Algae Bloom Operational Strategy" and wish to share some comments and concerns with you.

My primary concern is that the criteria considered in this strategy are limited to dam safety, human health, and hydrologic conditions or limitations. Nothing in the strategy addresses the potential environmental impacts of manipulating the distribution of algal and cyanobacteria cells, nutrients, or associated toxins. When considering changes of lake releases to the Everglades Protection Area (EPA; in this strategy document the area identified as the Water Conservation Areas, WCAs), it seems critical to ensure the protection of the EPA. This protection now and in the future hinges on protecting of the Storm Treatment Areas' (STAs) functionality. Analysis of potential risk to the STAs and the EPA is absent in the document and I recommend that expert analysis of this risk should be part of the NEPA process for the proposed Deviation.

Note that algal and cyanobacteria cells can be rich in nitrogen and phosphorus and can be rapidly decomposed, releasing these nutrients. Some key questions to consider are: 1) how will the input of these cells and associated nutrients affect short-term and long-term STA performance (P removal)?
2) will bloom inputs to STAs substantially increase nitrogen inputs to the EPA?
3) will toxins from the blooms concentrate in STAs and impact STA performance (likely via impact on fauna)?

One protective operational measure might be to identify lake nutrient or bloom intensity (chlorophyll a concentration) thresholds for ceasing releases to STAs. Establishing these thresholds likely would require expert professional advice. Deciding how to manage the distribution of harmful materials is challenging, but this should be addressed overtly in the strategic document; this is not just a water distribution problem.

Finally, comments on the section 6 criteria that warrant the use of HAB operations. Criterion 3 of this section is when a HAB "is anticipated". What will be the basis for this anticipation? What level or uncertainty is involved in this? Criterion 4 is when a HAB has occurred and caused harm during the last 18 months. In this case, given the lake's recent history of blooms and a 1 year Deviation period, doesn't that trigger HAB operations for the whole year?

I hope this helps with your consideration of how to best learn from NEPA analysis of the environmental, health and safety risks we face and how best to manage these risks.

Sincerely
Dave

David T. Rudnick, Ph.D.
Science Coordination Branch Chief
South Florida Natural Resources Center
Everglades National Park

950 N. Krome Ave.
Homestead, FL 33030
office: (305) 224-4245
mobile: (305) 338-3508

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Stephania Bolden - NOAA Federal <stephania.bolden@noaa.gov>
Sent: Monday, July 15, 2019 2:33 PM
To: Nasuti, Melissa A CIV USARMY CESAJ (USA); LoSchiavo, Andrew J CIV USARMY CESAJ (USA)
Cc: Bernhart, David; Dunn, Angela E CIV USARMY CESAJ (USA); Alejandro, Luis Alberto CIV USARMY CESAJ (US); Engle, Jason A CIV USARMY CESAJ (USA); Lacy, Savannah H CIV USARMY CESAJ (USA); Summa, Eric P CIV USARMY CESAJ (US); Robert Hoffman
Subject: [Non-DoD Source] Re: LORS 2008 Deviation

Good afternoon,

Thank you for the coordination and sharing the USACE Jacksonville District plans and determinations. You are not required to seek our concurrence on "no effect" determinations, and it is NMFS policy not to provide concurrence on another agency's "no effect" determinations.

This project has been logged into the new NMFS Environmental Consultation Organizer (ECO), formerly known as PCTS, as INQ-2019-000197.

Thank you,
Stephania Bolden

On Wed, Jul 10, 2019 at 7:22 PM Nasuti, Melissa A CIV USARMY CESAJ (USA) <Melissa.A.Nasuti@usace.army.mil <mailto:Melissa.A.Nasuti@usace.army.mil> > wrote:

Good Afternoon,

The U.S. Army Corps of Engineers, Jacksonville District (Corps) is preparing a National Environmental Policy Act (NEPA) Environmental Assessment (EA) and Proposed Finding of No Significant Impact (FONSI) associated with a planned deviation to the water control plan for Lake Okeechobee and the Everglades Agricultural Area (also known as the Lake Okeechobee Regulation Schedule (LORS 2008)). The agency goal for LORS is to balance project purposes while taking measures it can within its authority to further public health and safety. The Corps' intent is to improve the ecological health of Lake Okeechobee and the St. Lucie and Caloosahatchee estuaries, with minimal or no impact to the competing project purposes. In addition to meeting Congressionally authorized project purposes including flood control, water supply, navigation, fish and wildlife enhancement, and recreation, LORS objectives include: a) ensuring public health and safety; b) managing Lake Okeechobee at optimal lake levels to allow recovery of the lake's environment and natural resources; and c) reducing high volume regulatory releases to the estuaries.

The Corps is preparing NEPA documentation for a planned deviation from LORS 2008 in anticipation of and following freshwater harmful algae blooms (HABs) with the goal of reducing the risk to public health and safety associated with HABs. The algae crisis has caused substantial and widespread impacts to Florida communities over the last several years (2016 and 2018) resulting in state declared emergencies in multiple counties. The proposed action will enhance the ability of the Corps to respond to HABs within its authority as defined by LORS 2008.

The planned deviation will alter the timing and volume of Lake Okeechobee releases to the Water Conservation Areas (WCAs), east, and/or west to allow for greater flexibility with water management decisions when HABs are present in Lake Okeechobee, the St. Lucie or Caloosahatchee estuaries or the system of canals that connect them. The planned deviation will allow the flexibility to make slightly larger releases east and west than LORS 2008 Part D (establishes allowable Lake Okeechobee releases to tide (estuaries)) calls for and make releases south when LORS Part C (establishes allowable Lake Okeechobee releases to the WCAs) does not recommend releases within the Beneficial Use Sub-Band, Base Flow Sub-Band, Low Sub-Band, and the Intermediate Sub-Band. These slightly larger releases when risk of transporting HABs is low will allow greater flexibility to reduce releases during times when HABs are present in the lake or estuaries. The releases under this flexibility would be below the harm thresholds for the Caloosahatchee and St. Lucie estuaries identified in the LORS 2008 Supplemental Environmental Impact Statement (SEIS) and 2007 RECOVER Northern Estuaries salinity performance measure.

Flow targets have been developed to achieve desired salinity ranges in the estuaries to meet the needs of key indicator species such as oysters and submerged aquatic vegetation. Within the Caloosahatchee Estuary, targets are based on freshwater discharges from the C-43 canal at the S-79 structure where the mean monthly inflow should be maintained below 2,800 cubic feet per second (cfs). Flows greater than 2800 cfs cause mortality of marine seagrasses and oysters in the lower estuary and at flows greater than 4500 cfs, seagrasses begin to decline in San Carlos Bay.

Within the St. Lucie Estuary, targets are based on freshwater discharges at the S-80, S-48, S-49 and Gordy road structures where the target frequency of mean biweekly flows should be maintained below 2,000 cfs. Based on the salinity tolerances of oysters, flows in the 350-2000 cfs range produce tolerable salinities for oysters. Flows greater than 2000 cfs result in low, intolerable salinity within the estuary. Flows greater than 3000 cfs damage seagrasses in the Indian River Lagoon.

The above targets were developed to reduce minimum discharges and mediate high flow events to the estuaries to protect estuarine habitat and biota. Under the proposed action, releases could be made in advance of HAB events, which would be limited to the maximum of either the LORS Part D guidance or 2,000 cfs measured at S-79 and up to 730 cfs measured at S-80 which are below the above identified targets.

The cumulative volume of water released under the planned deviation will be tracked against releases that would have made under LORS 2008. The objective will be to reach a net zero balance such that the total volume released across the entire year is unchanged from the releases that would have taken place under the existing schedule without the deviation. The planned deviation would be implemented as soon as possible. The planned deviation will be in effect for a minimum duration of one year. The Corps Water Management Section's assessment of hydrometerological conditions and stakeholder or agency input may suspend or discontinue the planned deviation due to impacts greater than expected/discussed within this EA. Termination of this deviation may be implemented at any time. Reevaluation of and possible extension of the planned deviation will occur after year one of implementation. The duration of the planned deviation may extend until LORS 2008 is replaced by a new water control plan (to be called the Lake Okeechobee System Operation Manual (LOSOM)) anticipated in 2022. The decision making-making process will remain unchanged from LORS 2008 and will include the opportunity for input during the Periodic Scientist Calls.

These operations would only be utilized if any one of the conditions below were met: (1) if a HAB is currently in Lake Okeechobee, C-43, or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary; (2) if the state of Florida declares a state of emergency due to HABs on Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary; (3) if a HAB is anticipated to occur on Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee

Estuary, or the St. Lucie Estuary; (4) if a HAB has occurred and caused harm, or have impacted public safety during the last 18 months within Lake Okeechobee, C-43 or C-44 canals, the Caloosahatchee Estuary, or the St. Lucie Estuary. Please refer to the attached draft HAB operational strategy for more details regarding the action.

The Corps has completed an EA and Proposed FONSI that will accompany our deviation request to the Corps' South Atlantic Division (SAD) for approval. If SAD approves the proposed deviation, the Jacksonville District plans to sign the FONSI and post for public notification and comment for a period of 30 days. Due to the nature and immediate need for this deviation, we are not able to solicit public comment prior to signature of the FONSI The Corps will determine the need for supplemental NEPA once the public comment period has expired. The Corps has determined that this action is consistent to the maximum extent practicable with Florida's Coastal Management Program because it falls within the overall limits of LORS 2008.

The Corps acknowledges the potential usage and occurrence of threatened and endangered species and/or critical habitat within the project area. The Corps is requesting via this email expedited consultation under the Endangered Species Act of 1973, as amended. The Corps has made the following species effects determinations. Specifically, the Corps has determined that the planned temporary deviation will have no effect on the Johnson's seagrass (Halophila johnsonii) and its designated critical habitat, the smalltooth sawfish (Pristis pectinata) and its designated critical habitat, the loggerhead sea turtle (Caretta caretta), the leatherback sea turtle (Dermochelys coriacea), the Kemp's ridley sea turtle (Lepidochelys kempii), hawksbill sea turtle (Eretmochelys imbricata), the green sea turtle (Chelonia mydas), the rough cactus coral (Mycetophyllia ferox), the lobed star coral (Orbicella annularis), the mountainous star coral ((Orbicella faveolata), the boulder star coral (Orbicella franksi), the Elkhorn coral (Acropora palmata), the Staghorn coral (Acropora cervicornis), the Nassau grouper (Epinephelus striatus), the Giant manta ray (Manta birostris) and the oceanic white tip shark (Carcharhinus longimanus). Additional justification for the respective effects determinations for the smalltooth sawfish and Johnson's seagrass is summarized below.

Smalltooth sawfish and Johnson's seagrass:

The planned deviation releases will be no more than 2000 cfs from S-79 to the Caloosahatchee River and 730 cfs from S-80 to the St. Lucie River. This is below the harm threshold for the Caloosahatchee River of 2800 cfs which is protective of salinities at shell point for SAV and for oysters and a salinity range of 10 -30 practical salinity units (PSU) between Cape Coral and Shell Point. The maximum 2000 cfs would result in a range of 13-27 PSU (RECOVER, 2014). This range of 10-30 PSU would likely continue to provide ample habitat within the range of 18-30 PSU along the shore line where juvenile sawfish are found (Poulakis, et al., 2011). LORS deviation releases would be smaller than the larger flow events that would cause additional movement downstream of smalltooth sawfish (Scharer et al., 2017). The planned deviation releases would be below the 2000 cfs threshold on the St. Lucie that would cause salinities to be in the 10-26 PSU range for oysters in the middle estuary. This is also far below the 3000 cfs threshold that would impact salinities and potentially water clarity issues at the A1A bridge just west of seagrass habitats in the mouth of the estuary, where Johnson's seagrass has been located (RECOVER, 2014).

Due to the immediate need for this deviation, the Corps specifically requests your written concurrence on our species effects determinations by July 16, 2019 to Andrew LoSchiavo at Andrew.J.Loschiavo@usace.army.mil <mailto:Andrew.J.Loschiavo@usace.army.mil> . The Corps commits to avoiding and minimizing for adverse effects on federally listed species and would continue to coordinate with USFWS as needed.

References

Poulakis, G.R., P.W. Stevens, A. A. Timmers, T.R. Wiley, and C.A. Simpfendorfer. 2011. Abiotic affinities and spatiotemporal distribution of the endangered smalltooth sawfish, Pristis pectinata, in a south-western Florida nursery. Marine and Freshwater Research 62: 1165-1177.

RECOVER 2007. Northern Estuaries Performance Measure Salinity Envelopes, U.S. Army Corps of Engineers. Jacksonville, Fl.

RECOVER, 2014. 2014 System Status Report. Chapter 4 - Northern Estuaries. U.S. Army Corps of Engineers. Jacksonville, Fl. Pg. 4-35 to 4-36. Blockedhttps://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll7/id/8694

Scharer, R. M., P.W. Stevens, C.P. Shea, and G.R. Poulakis. 2017. All nurseries are not created equal: Large-scale habitat use patterns in tow smalltooth sawfish nurseries. Endangered Species Research 34: 473-492.

Thanks,

Melissa Nasuti
Planning and Policy Division
U.S. Army Corps of Engineers
904-232-1368

--

Stephania K. Bolden, Ph.D.
NOAA Fisheries, Protected Resources
Southeast Regional Office

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: Altes, Christopher F CIV USARMY CESAJ (USA)
Sent: Monday, July 15, 2019 11:31 AM
To: Nasuti, Melissa A CIV USARMY CESAJ (USA)
Subject: FW: LORS 2008 Deviation

Good morning,

Mr. Mueller from STOF - THPO has sent an additional email.

I am going to let him know that I will continue to track the deviation and will let them know if there are additional deviations.

Regards,
chris

Regards
Chris
Christopher F. Altes
Archeologist
Planning Division, Environmental Branch Jacksonville District, US Army Corps of Engineers
Office: 904-232-1694
Mobile: 904-710-8103
Christopher.F.Altes@usace.army.mil

-----Original Message-----
From: Bradley Mueller [mailto:bradleymueller@semtribe.com]
Sent: Monday, July 15, 2019 11:17 AM
To: Altes, Christopher F CIV USARMY CESAJ (USA) <Christopher.F.Altes@usace.army.mil>
Cc: Anne Mullins <AnneMullins@semtribe.com>; Juan Cancel <JuanCancel@semtribe.com>; David Echeverry <davidecheverry@semtribe.com>; Moreno, Meredith A CIV USARMY CESAJ (US) <Meredith.A.Moreno@usace.army.mil>
Subject: [Non-DoD Source] RE: LORS 2008 Deviation

July 15, 2019

Subject: LORS 2008 Deviation Determination

THPO Compliance Tracking Number: 0031556

Good Morning Chris,

Thank you for getting back to me on this. Based on my review of the USACE cover email dated July 10, 2019 and the draft document entitled “Harmful Algae Bloom Operational Strategy” dated July 9, 2019, it is also my understanding that the existing restrictions on the maximum water levels in the WCA’s will not be exceeded, but that there may be changes in the timing and volume of water releases into the WCA’s if it becomes necessary. Under those conditions we concur with your determination of no potential to cause effect. Will you be notifying us if a deviation into the WCA’s occurs under the proposal?

Respectfully,

Bradley M. Mueller, MA, Compliance Specialist

STOF-THPO, Compliance Review Section

30290 Josie Billie Hwy, PMB 1004

Clewiston, FL 33440

Office: 863-983-6549 ext 12245

Fax: 863-902-1117

Email: bradleymueller@semtribe.com <mailto:bradleymueller@semtribe.com>

Web: Blockedwww.stofthpo.com

-----Original Message-----
From: Altes, Christopher F CIV USARMY CESAJ (USA) [mailto:Christopher.F.Altes@usace.army.mil]
Sent: Wednesday, July 10, 2019 4:31 PM
To: Moreno, Meredith A CIV USARMY CESAJ (US) <Meredith.A.Moreno@usace.army.mil>; Bradley Mueller <bradleymueller@semtribe.com>
Cc: Anne Mullins <AnneMullins@semtribe.com>; Juan Cancel <JuanCancel@semtribe.com>; Victoria Menchaca <VictoriaMenchaca@semtribe.com>
Subject: RE: LORS 2008 Deviation

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon,

Meredith asked I follow up on this topic.

The potential impact to the WCAs was my first question when the deviation was proposed. My understanding of the proposed deviation is that it will expressly not affect the schedules of the water conservation areas. My understanding is that releases to the south (to the WCAs) will be evaluated first and only happen in accordance with the existing schedules in the WCAs. If the releases to the south would cause any of the WCAs to rise more rapidly than is ecologically preferable, then the release may not be sent south from the lake. Hydrologic, ecological, and water supply conditions within the WCAs would be taken into account before sending water south. The normal management of water within the WCAs will continue. No impacts to the WCAs are anticipated for harmful algae bloom operations.

The deviation would provide flexibility on the releases to the east and west. This would allow the operators to hold back water to the estuaries when they think it will have harmful algae blooms, and release water when they think it does not have algae.

Please contact me with any questions or concerns. I expressly asked about the water deliveries to the WCAs to get answers on this topic.

Regards,

Chris

Christopher F. Altes

Archeologist

Planning Division, Environmental Branch

Jacksonville District, US Army Corps of Engineers

Office: 904-232-1694

Mobile: 904-710-8103

Christopher.F.Altes@usace.army.mil <mailto:Christopher.F.Altes@usace.army.mil>

-----Original Message-----

From: Moreno, Meredith A CIV USARMY CESAJ (US)

Sent: Wednesday, July 10, 2019 2:58 PM

To: Bradley Mueller <bradleymueller@semtribe.com <mailto:bradleymueller@semtribe.com> >

Cc: Anne Mullins <AnneMullins@semtribe.com <mailto:AnneMullins@semtribe.com> >; Juan Cancel <JuanCancel@semtribe.com <mailto:JuanCancel@semtribe.com> >; Victoria Menchaca <VictoriaMenchaca@semtribe.com <mailto:VictoriaMenchaca@semtribe.com> >; Altes, Christopher F CIV USARMY CESAJ (USA) <Christopher.F.Altes@usace.army.mil <mailto:Christopher.F.Altes@usace.army.mil> >

Subject: RE: LORS 2008 Deviation

Hi Brad,

We determined that the LORS deviation has no potential to effect to effect historic properties pursuant to 36 CFR § 800.3(a)(1) as there will be no water going south, only to tide through the canals. There is not even additional water, it is just the timing of releases. No water regulation schedules or water delivers into the WCAs are changing. Chris will be helping Melissa with the NEPA, so feel free to call or email myself or him with any questions.

Thanks!

Meredith A. Moreno, M.A., RPA

Lead Archaeologist

Planning Division, Environmental Branch

Jacksonville District, US Army Corps of Engineers

Office: 904-232-1577

Mobile: 904-861-9967

-----Original Message-----

From: Bradley Mueller [mailto:bradleymueller@semtribe.com <mailto:bradleymueller@semtribe.com>]

Sent: Wednesday, July 10, 2019 2:51 PM

To: Moreno, Meredith A CIV USARMY CESAJ (US) <Meredith.A.Moreno@usace.army.mil <mailto:Meredith.A.Moreno@usace.army.mil> >

Cc: Anne Mullins <AnneMullins@semtribe.com <mailto:AnneMullins@semtribe.com> >; Juan Cancel <JuanCancel@semtribe.com <mailto:JuanCancel@semtribe.com> >; Victoria Menchaca <VictoriaMenchaca@semtribe.com <mailto:VictoriaMenchaca@semtribe.com> >

Subject: [Non-DoD Source] LORS 2008 Deviation

Hello Meredith,

I am reading a cover email and attachment from Melissa Nasuti that I received today about the LORS 2008 Deviation proposal. Has this been assigned to one of your archaeologists for consultation yet? Based on my initial read it looks like our only concern would be any changes to water deliveries in the WCA's. Thanks!

Respectfully,

Bradley M. Mueller, MA, Compliance Supervisor

STOF-THPO, Compliance Review Section

30290 Josie Billie Hwy, PMB 1004

Clewiston, FL 33440

Office: 863-983-6549 ext 12245

Fax: 863-902-1117

Email: bradleymueller@semtribe.com <mailto:bradleymueller@semtribe.com> <mailto:bradleymueller@semtribe.com <mailto:bradleymueller@semtribe.com> >

Web: BlockedBlockedwww.stofthpo.com

Nasuti, Melissa A CIV USARMY CESAJ (USA)

From: LoSchiavo, Andrew J CIV USARMY CESAJ (USA)
Sent: Tuesday, July 16, 2019 8:13 PM
To: Nasuti, Melissa A CIV USARMY CESAJ (USA); Lacy, Savannah H CIV USARMY CESAJ (USA)
Subject: FW: Harmful Algae Bloom (HAB) Operational Strategy

Melissa and Savannah,

Please see comments from James.

Andrew (Andy) LoSchiavo
Restoration and Resources Section Chief, Planning and Policy Division - Environmental Branch U.S. Army Corps of Engineers - Jacksonville District
E: Andrew.J.LoSchiavo@usace.army.mil
P: 904-232-2077; C: 904-305-1421

-----Original Message-----
From: Erskine, James [mailto:James.Erskine@MyFWC.com]
Sent: Tuesday, July 16, 2019 3:25 PM
To: LoSchiavo, Andrew J CIV USARMY CESAJ (USA) <Andrew.J.Loschiavo@usace.army.mil>
Subject: [Non-DoD Source] Harmful Algae Bloom (HAB) Operational Strategy

Andy,

Thank you for taking the time today to discuss the Lake Okeechobee Regulation Schedule 2008 Planned Deviation – Harmful Algae Bloom (HAB) Operational Strategy. To recap our conversation, FWC staff has conducted a preliminary review of the available materials and we provide the following comments as technical assistance to USACE.

Comments

FWC staff appreciates USACE's attempt to create an operating protocol that increases flexibility under adverse conditions. An objective of the proposed HAB operations is to reach a net zero balance in discharges at the end of a 12-month tracking period such that the total volume released across the entire year is unchanged from the releases that would have taken place under the existing schedule. Although staff feel this goal is accomplishable while taking ecological conditions into consideration, we must collectively use caution so as not to disrupt the natural hydrologic cycles or cause significant hydrologic reversals that affect wildlife populations.

Please consider the following comments for the proposed HAB operations:

* Operating under the planned deviation will require good coordination and feedback from agency scientists, managers, and stakeholders. USACE should consider holding frequent Periodic Scientists Calls when implementing HAB operations to stay fully informed on regional conditions.

* Section 2 (second bullet) states “Allow the flexibility to make up to maximum practicable releases south to the WCAs when LORS Part C does not recommend release.” USACE should consider adding a statement to this bullet point to clarify that releases to the WCA’s will be made “up to maximum practicable” only if all WCAs are “less than 0.25 feet above the max of the upper schedule” (Section 6-d).

* Section 6-a outlines conditions where HAB operations may be utilized. Conditions 1 and 2 provide clear guidance. In Condition 3, USACE should consider defining how the anticipation of a HAB would be determined. In Condition 4, USACE should consider shortening the timeframe from 18 months to 12 months to limit HAB operations to one complete hydrologic cycle or clearly explain why the extended timeframe is necessary.

FWC staff appreciate being able to offer technical assistance to USACE early in this process. Please feel free to reach out to me directly.

Sincerely

James M. Erskine

Everglades Coordinator

Florida Fish and Wildlife Conservation Commission

8535 Northlake Boulevard

West Palm Beach, FL 33412

Cell: 561-660-2984

James.Erskine@MyFWC.com <mailto:james.erskine@myfwc.com>

MyFWC.com <Blockedhttp://www.myfwc.com/>

Office of Agricultural Water Policy
(850) 617-1700

The Mayo Building
407 South Calhoun Street
Tallahassee, Florida 32399-0800

Florida Department of Agriculture and Consumer Services
Commissioner Nicole "Nikki" Fried

July 15, 2019

Andrew LoSchiavo
Restoration and Resources Section Chief, Planning and Policy Division - Environmental Branch
U.S. Army Corps of Engineers - Jacksonville District

RE: LORS 2008 HAB Deviation

Andrew,

The Department of Agriculture and Consumer Services (Department) Office of Agricultural Water Policy (OAWP) thanks you for the opportunity to submit these initial comments on the draft "Harmful Algae Bloom (HAB) Operational Strategy," dated July 9, 2019, which is being proposed as a deviation from the water control plan for Lake Okeechobee (LO) and the Everglades Agricultural Area (EAA), aka as the Lake Okeechobee Regulation Schedule 2008 (LORS08), under the National Environmental Policy Act with a proposed Finding of No Significant Impact (FONSI). The Department is committed to a transparent and inclusive approach on water and environmental issues that allows for ample public participation for decisions that impact the lives and businesses of the people of the great state of Florida. The management of Lake Okeechobee depends on finding collaborative solutions to complex water and environmental challenges.

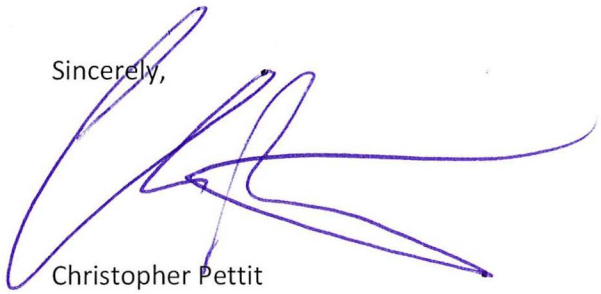
With Lake Okeechobee below 12 ft NGVD, there is no eminent threat of releases to the estuaries and therefore no apparent immediate need to deviate from existing operations, particularly as Lake Okeechobee elevations are currently close to entering the Water Shortage Band of LORS08. The OAWP supports the efforts of the United States Army Corps of Engineers (Corps) work towards an updated operations schedule that protects both the human and natural environments. However, the OAWP has concerns that the current proposed deviation is being undertaken outside the necessary procedural requirements and without stakeholder participation. The delivery of the proposed deviation to a limited number of stakeholders without the supporting technical and scientific documentation limits the ability of those stakeholders to provide real and substantive comments. Further, the apparent limited distribution of the proposal does not provide the public the ability to participate in the process. At a minimum, the OAWP would appreciate additional time for stakeholders to provide recommendations for "operational guard rails" as previously discussed with representatives from the United States Army Corps of Engineers (Corps).

In addition to the concerns expressed above, the following are the OAWP's initial technical concerns:

- The proposed deviation is a major change in operations that generates additional operational risks for the human and natural environments during both low-water and high-water events. Additional evaluation of the impacts and stakeholder input on the effects of such impacts is needed to support the deviation proposed and meet NEPA requirements.
- The proposal includes several vague terms and phrases that fail to provide a clarity as to their intended meaning that will lead to unnecessary confusion.
- The OAWP recommends that Lake Okeechobee be managed based on the stage and climatic conditions at a specific time, in accordance with LORS08. The concept of banking water does not appear to be effective as proposed and has previously been undertaken by the Corps with minimal, if any, success.
- The proposal appears to subject Lake Okeechobee to a greater risk of Minimum Flow and Level violations and water shortages. Additional documentation should be provided and a public process as contemplated by NEPA should be undertaken so as to provide the administrative scrutiny and documentation needed to ensure that these impacts will not occur under the proposed deviation.

The OAWP appreciates the opportunity to provide input these initial comments on the proposed deviation in the LORS08. We look forward to future opportunities to continue work with our federal and state partners.

Sincerely,



Christopher Pettit
Director
Office of Agricultural Water Policy
Department of Agriculture and Consumer Services

FLORIDA DEPARTMENT OF
Environmental Protection
Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary

July 18, 2019

Ms. Angela Dunn
Environmental Branch Chief
U.S. Army Corps of Engineers, Jacksonville District
701 San Marco Blvd.
Jacksonville, FL 32207-0019

Dear Ms. Dunn,

This letter acknowledges receipt of the United States Army Corps of Engineers (Corps) July 10, 2019 notice to the Florida Department of Environmental Protection (Department) for an upcoming National Environmental Policy Act (NEPA) Environmental Assessment (EA) and Final Finding of No Significant Impact (FONSI) associated with a planned deviation to the water control plan for Lake Okeechobee and the Everglades Agricultural Area (also known as the Lake Okeechobee Regulation Schedule (LORS 2008)). The goal for LORS is to balance project purposes while taking measures it can within its authority to further public health and safety. The Corps' intent is to improve the ecological health of Lake Okeechobee and the St. Lucie and Caloosahatchee estuaries with minimal or no impact to the competing project purposes. In addition to meeting Congressionally authorized project purposes including, flood control, water supply, navigation, fish and wildlife enhancement, and recreation, LORS objectives include: a) ensuring public health and safety; b) managing Lake Okeechobee at optimal lake levels to allow recovery of the lake's environment and natural resources; and c) reducing high volume regulatory releases to the estuaries.

The Department has reviewed the information provided and offers the following comments:

1. Please note that this strategy is not exempt from the Coastal Zone Management Act (CZMA) process and the comments provided are not intended to represent the Department's CZMA review.

2. The EA/FONSI should explain whether any new modeling runs were performed in support of the development of the HAB Operational Strategy.

3. The EA/FONSI should characterize whether the proposed potential alteration of the timing and volume of Lake Okeechobee releases will have any impact, even temporarily, on the minimum flows and levels (MFLs) for Lake Okeechobee, St. Lucie Estuary, Caloosahatchee Estuary and Florida Bay.

4. On page 5 of 12, please renumber Section 6-c, "Water Bank for HAB operations", as Section 6-f. Consequently, please revise the reference to the Water Bank section at the end of the 1st paragraph and in the 3rd paragraph of Section 6-e.

5. The conditions described in 6a would benefit from more clearly written descriptions and appear to conflict with the operations as described in 6b. For example, bullet three of 6b indicates that operations could be altered in anticipation of a HAB, but 6a "triggers" 1,2, and 4 of 6a are contrary to this operation strategy.

6. We appreciate that you are going to use the periodic scientist call to transfer info about how the deviation is occurring, but we recommend holding this on a weekly basis at a minimum whenever the criteria for the operational strategy is met as a venue to receive information from the public as well as inform the public of the status.

The Department appreciates the Corps' commitment to maintaining flood control, water supply, navigation, fish and wildlife enhancements, and recreation as identified in LORS 2008 while seeking operational flexibility within the current regulation schedule to improve water quality. We look forward to our continued partnership with the Corps on this effort. Should you have any questions regarding our comments, please contact me at Edward.C.Smith@floridadep.gov or (850) 245-3169.

Sincerely,

Edward C. Smith
Director
Florida Department of Environmental Protection
Office of Ecosystem Projects

Electronic Copies Furnished To:
Drew Bartlett, SFWMD
John Mitnick, SFWMD
Matt Morrison, SFWMD
James Erskine, FWC
Rebecca Elliott, FDACS
Trina Vielhauer, FDEP
Edward C. Smith, FDEP
Frank Powell, FDEP
Stan Ganthier, FDEP

FLORIDA FARM BUREAU FEDERATION

THE VOICE OF AGRICULTURE

July 22, 2019

Via E-mail to:

Mr. Andrew LoSchiavo, Restoration and Resources Section Chief
Planning and Policy Division-Environmental Branch
US Army Corps of Engineers - Jacksonville District

RE: US Army Corps of Engineers Proposed Lake Okeechobee Water Management Deviation

Dear Mr. LoSchiavo

The Florida Farm Bureau Federation represents more than 147,000 members statewide many of which live in south Florida and are reliant on a balanced approach to the management of Lake Okeechobee and the associated water resources. The Lake Okeechobee Regulation Schedule 2008 (LORS08) is important on many fronts - flood protection, environmental, economic, and water supply. We are aware of a proposed deviation from this regulation schedule in an effort to manage and control algal blooms within the Lake and are concerned with unilateral decisions made without stakeholder participation.

The Federation has been an active participant in the reassessment of LORS08 to provide adequate flood protection, minimum flows and permitted water supply needs as long as it is based on sound science along with stakeholder input. The limited distribution of this proposal does not follow any of this criterion and appears to be circumventing the public process in place to reevaluate the entire Lake Okeechobee System Operating Manual.

While we understand the concern with algal blooms in the Lake and their potential for harm to the estuaries, Lake management should be a holistic approach that balances system-wide environmental health, flood control, and existing permitted water allocations. This will minimize the potential for water supply shortages and assure the predictability of a continued and reliable water supply.

Our expectation is to be included in any decision making process concerning the Lake Okeechobee Regulation Schedule as well as other restoration projects. Only then can we continue to be an active partner in maintaining a balanced and sustainable approach to managing south Florida's water and natural resources.

Sincerely,

Charles M. Shinn III
Director – Government & Community Affairs
Florida Farm Bureau Federation

LAKE WORTH DRAINAGE DISTRICT

13081 MILITARY TRAIL
DELRAY BEACH, FLORIDA 33484-1105

July 19, 2019

Andrew LoSchiavo
Restoration and Resources Section Chief
Planning and Policy Division – Environmental Branch
U.S. Army Corps of Engineers – Jacksonville District
Jacksonville, FL

Subject: LORS 2008, 2019 HAB Deviation

Dear Mr. LoSchiavo:

The Lake Worth Drainage District (District) thanks you for the opportunity to provide comments on the proposed "Harmful Algae Bloom (HAB) Operational Strategy", dated July 9, 2019, which is being proposed as a deviation to the water control plan for Lake Okeechobee and the Everglades Agricultural Area (aka the Lake Okeechobee Regulation Schedule 2008 or LORS 2008). The District is committed to participation in an open, transparent and publicly inclusive process for the development and implementation of the proposed deviation. This best assures that all the people of south Florida affected by Lake Okeechobee operations are included and have opportunities to understand the proposal and to comment on the benefits and potential impacts that could result from implementation of the deviation. The long history of operational changes associated with Lake Okeechobee has consistently followed this publicly inclusive approach.

The U.S. Army Corps of Engineers (USACE) has just successfully finished an operational protocol to draw-down stages in Lake Okeechobee under the 'Additional Operational Flexibility' clauses of the LORS 2008 schedule. This has left the Lake at a current stage of 11.47 ft. NGVD, which is exactly the elevation of the upper boundary of the Water Shortage Management sub-band. On July 16, 2019, the Water Supply Report, Water Supply Technical Input to LORS2008, prepared by the South Florida Water Management District (SFWMD) Water Supply Advisory Team, indicated that the Palmer Index for Lake Okeechobee Tributary Conditions is classified as 'dry' and is in the 'moderate' risk category. Furthermore, the report projects the Lake stage is expected to be within the Beneficial Use sub-band for the next two months and the resulting classification of the risk to water supply is categorized as 'moderate.' It is therefore counterintuitive that the USACE would be considering a deviation to release water from the Lake under these conditions.

Furthermore, the current inflows to Lake Okeechobee are only 2,132 cubic feet per second (cfs), and hydrologic conditions in the tributary basins to the Lake are normal for this time of year. Short-term stage projections for Lake Okeechobee indicate that the most likely scenario puts the Lake stage near elevation 12.50 ft. NGVD at the beginning of September, only inches

above the Water Shortage sub-band. Absent a significant wet period in September or October, stages in Lake Okeechobee could be expected to reach only about elevation 13.0 NGVD by the start of the upcoming dry season, leaving little water in the Lake through the dry season to provide supplemental irrigation for communities and farms around the Lake and along the Lower East Coast of Florida.

While no specific hydrologic analysis has been developed or presented at this juncture, speculation based on historic experience would suggest that in addition to potential water supply problems resulting from the proposed operational deviation, there could also be unintended ecological impacts to the endangered Snail Kite and other detrimental environmental effects, such as violations to the Minimum Flows and Levels (MFL) criteria for the Lake and associated estuaries. Extreme low Lake levels could also pose a risk to navigation and other important mission elements of the federal project.

We recognize the serious environmental and health effects that can result from algae blooms in the coastal estuaries. However, proposing significant water management changes to address a water quality problem is an extreme solution. It suggests that a federal responsibility exists to address State and local water quality issues. Furthermore, the potential impacts to the State's water supply allocations may be significant and further calls into question the federal actions associated with this deviation.

In the absence of an open, transparent and inclusive public process, based on a sound scientific analysis, these issues cannot be fully understood or addressed. We encourage the USACE and other federal and State partners to assist in the development and evaluation of this important operational change. We look forward to assisting in any way possible.

Sincerely,

Tommy B. Strowd, P.E.
Executive Director / District Engineer
LAKE WORTH DRAINAGE DISTRICT